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VOL. XXXI. SEPTEMBER, 1917. No. 9.

VESICAL NEOPLASM.*

J. BENTLEY SQUIER, M. D., F. A. C. S.,
Professor of Urology, Columbia University,
NEW YORK CITY.

During the past five years neoplasm of the bladder has commanded the attention of the profession more than any other pathological condition of this organ.

A number of factors have been responsible for the awakening of interest in a much neglected field of surgery.

Among the most important, I would class BEER'S successful demonstration of the cure of papillomata by fulguration as *first,* the more universal use of the cystoscope and therefore more early recognition of the condition as *second,* and *third,* the fact that more of the profession are beginning to appreciate that a history of sudden painless hematuria, more profuse at the end of micturition, in a middle aged man indicates the possibility of the presence of vesical neoplasm.

A review of the literature on the subject of papilloma alone, shows that in five years seventy-four articles have appeared from authors of recognized authority and this society must experience satisfaction in that the most important contributions have borne the names of a number of its members.

Histological classification of bladder tumors is interesting if only to show their diversity of structure.

The classification of DAVIS WATSON and others based on that of KÜSTER, is:

1. Epithelial group—Papilloma, carcinoma, adenoma, dermoid cyst.

2. Connective tissue group—Sarcoma, myxoma, fibroma and angioma.

3. Muscle group—Myoma.

To this might be added on:

4. Endothelial group; for there has been a case reported by VECHI of lymphoendothelioma.

HARTMANN, makes a practical classification of two types according to the operating procedure indicated.

1. Non-infiltrating tumors demanding fulguration or simple excision.

2. Infiltrating tumors demanding wide operation removal.

YOUNG, in his 1913 report differentiated between, 1. Benign tumors. 2. Carcinoma. 3. Sarcoma. WATSON, in the same year presented observation on 1,160 cases of vesical neoplasm. He stated that in his opinion:

1. At least two-thirds of all tumors of the bladder when encountered by the surgeon are malignant.

2. There is an extraordinary well marked tendency to recurrence in a malignant form after removal of a benign neoplasm. In a certain proportion of these cases the recurrence takes place in a multiple form.

3. About two-thirds of vesical neoplasms have their origin in the lower 1/3 of the bladder.

4. It is impossible to be absolutely sure of the nature of a tumor of the bladder, except by an expert microscopic examination of all parts of the growth after it has been removed.

5. The large majority of all bladder tumors are either papilloma or carcinoma. The remainder are in order of their frequency, sarcoma, myoma, adenoma, angioma, osteochondrosarcoma, rhabdomyoma and dermoid cyst.

The frequency of bladder tumors in proportion to all tumors of the body has been variously estimated as from 4% to 8%.

In GARDNER'S review of 369 cases, 50 years was the average age when symptoms became manifest. The average age for the appearance of papilloma was 47, and carcinoma, 54.

The relative frequency of different types of tumors were:

Carcinoma	178	Cysts	4
Papilloma	175	Polyps	3
Sarcoma	7	Fibroma	6
		Cystitis Cystiea	1

YOUNG, in his report divided the cases according to the frequency of occurrence into:

Carcinoma	96	Benign	21
		Sarcoma	1

CASPER, in a report of 224 operations found 38 to be carcinoma and 186 to be benign.

SCHULTHAUS, reported 46 cases as follows: 31 carcinoma, 14 papilloma, 1 dermoid.

LUENBERGER, reported 11 carcinomata to 4 benign tumors.

* Read before the New York Society, American Urological Association, New York Academy of Medicine, February 7, 1917.

HARTMANN, 26 infiltrating or malignant and 20 non-infiltrating or benign.

BEER, in 1913, states that benign papilloma was more common than malignant. YOUNG, in the same year states that benign papilloma of the bladder are relatively infrequent and unless cured, almost always become malignant.

MANDLEBAUM and ZUCKERKANDL claim that there is a tendency to become malignant in from 65% to 75% of all cases of vesical tumor.

The etiological factor behind tumor formation in the bladder remains as obscure as does tumor formation elsewhere in the body. Research work has added nothing new as to causation.

The frequency of bladder tumor in Aniline dye workers is again brought to notice by the statistics of LUENBERGER.

He reports eight cases of his own and fifty-one others well authenticated. The tumors from this exciting cause were found in those making, as well as those handling the dyes. The variety of tumors included carcinoma, sarcoma, papilloma and fibroma. In two cases involvement of the kidney was also present.

He claims that the chemicals responsible were such aniline dyes as: safronin, dianisidin, congo red, benzidin, etc., all belonging to the group of aromatic-amido-hydroxyls.

He calls attention to a secondary inflammation present throughout the entire urinary tract associated with the vesical tumor in the aniline dye workers.

ADENOMA.

RAFIN (1905), collected 11 cases of adenoma of the bladder. To these BRIDOUX has added a case. Bridoux claims that adenoma may occur in any part of the bladder and in one of two forms.

(1) Circumscribed with pedicle. (2) Diffuse sessile type. He believes adenoma to be a forerunner of carcinoma and believes that resection with wide margin of healthy bladder wall to be the surgical indication.

ANGIOMA.

This is a very rare tumor. BRYAN has removed a cavernous angioma through suprapubic cystotomy. PANTZER reports a racemous angioma of uterus and bladder with improvement following ligation of pelvic vessels.

MYOMA.

Myoma of the bladder are of slow growth and do not metastasize. HEITZ-BOYER and DORE collected 23 cases of myoma of the bladder upon which operation had been performed. Suprapubic cystotomy with tumor resection resulted in 8% mortality.

Since the appearance of the above report, others have reported cases of bladder myoma,—LEVINE, GRONBERGER, GOTZEL and JUDD.

JUDD, claims for the symptomatology of myoma a more severe hematuria.

SARCOMA.

MUNWES searched surgical literature from articles appearing between the year 1638 to 1913, for reports of cases of sarcoma of the bladder. He was able to record 107 cases. There were 30 described as round-celled sarcoma and 16 as spindle-celled sarcoma. The remainder were classified under twelve different headings. Of these 107 cases, 76 were operated, 14 no treatment and in 17 no mention was made as regards to treatment attempted.

Only 3 cases among 69 which could be traced to the final outcome, could be considered cured. Those had been free from evidence of recurrence for periods varying from 5 to 13 years.

In GARDNER'S report of 7 cases of bladder sarcoma, 2 were in children, one 5 years and the other 6½ years of age. The other 5 varied between 30 and 73 years.

The prognosis following operative removal of vesical sarcoma, is the same as if no operation was attempted, namely, 100%.

CARCINOMA.

In considering whether any advance has been made within recent years towards reducing the mortality of carcinoma of the bladder, by operation or otherwise, a review of the results of operative treatment of bladder carcinoma, reported to the Second Congress of the International Society of Surgery, at Brussels in 1908, gives statistics with which to compare the results of later day work.

At this convention, ROVSING reported 80 cases of vesical carcinoma. In 54, ablation of mucous membrane and pedicle had produced 7 cures after a period of five years. In 5 cases, resection of the bladder wall with the tumor, resulted in one case remaining free from recurrence for 1½ years, and one for 1 year. Two were free from recurrence and still under observation for eleven months and six months after operation respectively. Three cases in which total cystectomies had been performed died within a year after operation.

In all of whom recurrence had taken place:

LEEGUEU, reported 12 cases, 10 cases of ablation of the pedicle and 2 cases of partial resection. Recurrence took place in all cases.

HARTMANN, reported 8 cases after ablation—4 without recurrence. Nine cases of partial resection, in all of whom recurrence or early death was the outcome.

RIBERG SANS, of Madrid, reported 5 cases treated by extirpation. Death followed in all within 6 months—certainly a gloomy outlook for operative cure a decade ago.

It seems difficult to understand how in these reported cases, ablation of the growth and mucous membrane could have produced a cure in any case if it was proved to be carcinoma. However, this brings up a very interesting observation, to which all urologists are familiar, namely, the discrepancies which may exist between the clinical course of the disease and the findings of the pathologist. There seems to be a clinical benignancy in certain laboratory malignancies. It is only a slight rift in the clouds we will admit, but it is on rare occasions encountered.

If any advance in operative method is to be claimed for the later years, it has been in relegating the simple ablation of the tumor to obliquity and substituting the more formidable resection of the tumor with bladder wall. GARDNER'S statistics are again of interest in this connection.

In 442 collected cases, in which excision of growth only was attempted, recurrence took place in 88% whereas in 224 cases, a partial resection recurrence took place in only 43%. In the first group recurrence became evident before 3 years, in 172 cases (85%), over 3 years in 5 cases (25%.) In the second group: under 3 years, 60 cases (41%), over three years, 4 cases (2.7%).

A gain for the newer type of operation of almost 50% in mortality reduction seems a reasonable conclusion.

In subtotal cystectomy for the removal of vesical tumors, an extraperitoneal or transperitoneal approach may be used. CHUTE, a few years ago made a plea for pelvic lymph node extirpation to be a routine measure in bladder tumor excision.

JUDD, states that one of the chief advantages of a transperitoneal approach to the bladder, is the opportunity it affords for observation of pelvic and abdominal lymph nodes.

The secondary involvement of lymph nodes in connection with bladder tumors is however a matter still under discussion.

HILDEBRAND, drawing conclusions from his experience and from autopsies believes it to be frequent.

Lymph vessels have not been demonstrated with frequency in the bladder mucosa but the muscular coat does show mucous lymph vessels. Nevertheless, recurrence in the bladder following removal of tumors usually locate in the line of incision or as contact tumors, the classic "Kiss Tumor."

In any event, in the light of our present surgical knowledge, if we are to hope for cure from operative surgery in vesical neoplasms, it is essential to provide for an adequate abdominal incision, a large degree of mobilization of the bladder, a wide excision of the growth and surrounding bladder wall, with sufficient intra and extra vesical drainage of the operative field during the post-operative period.

I believe that if diseased lymph nodes are encountered, whether they are excised or not will make but little difference upon the final outcome of that particular case. If they are found to be invaded, the operation will be only a palliative one at best.

COMPLETE EXTIRPATION OF THE BLADDER.

Unfortunately this procedure in the majority of reported cases seems to have been used in tumors so far advanced that partial resection was impossible.

It seems undoubtedly applicable to infiltrating tumors involving the trigone and neck of the bladder.

Total extirpation should be preceded by transplantation of the ureters, or by nephrostomy as advocated by Watson.

WATSON collected and tabulated exhaustively the reports of 62 cases of complete removal of the bladder. His discussion may be well worth quoting:

"When one studies the results of this operation, one is at once struck by certain points in connection with it. They may be presented as an answer to the question: Why should this operation have had such an enormous operative mortality? (1) In not more than 3 of the 62 cases was the tumor in an early stage of development. In the great majority of the cases, the patients were in a state of cancerous cachexia and their powers of resistance to any serious procedure were greatly lowered. The whole conception of the operation has been mistaken and it has been reserved as a last desperate resort for the cases in which it has been either wholly inappropriate or else in which there has been definite contra indications to the performance of any other procedure.

It would be just as intelligent to postpone the major operation for removal of the breast when it is affected by cancer until the patient is greatly prostrated or until there are metatasis in the lung, as it has been to do the total cystectomies in the cases in which the operation has hitherto been applied. This fact accounts for the greater part of the 33 operative deaths.

The next feature connected with the operative and later deaths is the immense proportion of them which are the results of renal infection. No less

than 48% of all the deaths were referrable to this cause."

He recommends as follows:

(1) That total cystectomy be done in cases of sarcoma of the bladder in the early stages of development of the process and when the patient's powers of resistance were good.

Discussion in connection with total cystectomy has been largely relative to what constitutes the best provision for urinary drainage.

WATSON advocates on account of the unusually high percentage of renal infectious deaths following both rectal and colonic or loin implantation, that a bilateral nephrostomy should be done as a preliminary to the cystectomy.

Intestinal implantation of the ureters has shown in all published reports an unusual high percentage of infections. The best results have been from the MADYL technic in which the ureteric orifices and part of the bladder wall was transplanted with the ureters. Unfortunately the type of case in which this procedure should be used, is one in which the ureter orifices are almost always more or less involved by the gravity.

SONNENBERG, recommends an implantation of the ureters diagonally in the wall of the colon. Somewhat similar to the COFFEY technic.

OPPEL used the same technic and believed it to be far superior to any other procedure.

PETROW, reviewed 64 cases, the same as reviewed by Watson and his advice was as follows:

Operate on ureters first, and recommends implantation into the intestine, to be followed two weeks later by removal of the bladder.

HILDEBRAND, on the contrary recommends in females, transplanting into vagina and in males, into loin.

HERESCO reports four cases of complete removal of the bladder with implantation of ureters into the skin usually into upper part of wound: 1 lived 10 months, 1 lived 6 months, and 1 living 2½ to 4½ years after operation.

He believes skin implantation to be much superior to intestinal or vaginal implantation, since it permits of catheterization at will, and of disinfection of the pelvis with antiseptic irrigations. Implantation in the hypogastric region is superior to the lumbar region because the patient may catheterize and irrigate himself and one collector can be used for both sides.

TREATMENT OF PAPILLOMA OF THE BLADDER.

At present, the almost unanimous opinion of urologists regarding the treatment of vesical papilloma is removal by fulguration.

Since BEER published his brief report in 1910, on this method of treatment, there has been a steady endorsement of the method by one surgeon after another. A list of their names would appear almost as the roster of the Urological Association.

KEYES, early recommended the Oudin monopolar spark to be superior to the D'Arsonval bipolar.

By the year 1912, Beer had collected 183 cases from the literature and from personal communications to him. He also recommended the Oudin to be better than the O'Arsonval current. He called attention to the difficulty of treating papilloma associated with cystitis and the necessity of giving attention to the cure of the cystitis.

JUDD reported 17 cases from the Mayo Clinic treated by Oudin current, eleven of which were recurrent after operation.

Reviewing his experience in 1913, BEER, advised operation to be substituted for fulguration in:

(1) Carcinoma. (2) All intolerated cases. (3) Large growths at the neck of the bladder which are traumatized by the electrode and bleed so freely that vision is obscured. (4) Inaccessible tumors.

BINNEY, in the same year concluded:

(1) High-frequency current was important in the treatment of non-infiltrating type of carcinoma.

(2) Free from complications.

(3) Avoidance of danger of multiple recurrences, common after cystotomy.

(4) Results were highly encouraging.

WATSON, endorsed the method as effective and likely to be more effective in the treatment of benign papilloma than operation.

BARNEY, reported a case, thought to be cancer, the Oudin spark having been used to remove a supposed papilloma. The area fulgurated was excised and found to be only a scar.

LEGUEUR concluded that, operative incision is the treatment of choice in tumors of any large size, but for small tumors or recurrent nodes the endovesical treatment is preferrable.

LOWER, reported one case showing on resection the typical picture of a papilloma. Section proved it to be carcinoma. Treated the recurrence by fulguration.

ASHCRAFT, in his report concluded:

1. D'Arsonval current is superior to the Oudin in the treatment of both benign and malignant tumors.

2. That the Oudin current stimulated malignant growths.

3. That the D'Arsonval current does more for bladder tumors than does surgery.

GEBELS, summarized the indications for fulguration as follows:

1. Papilloma clinically benign and not exceeding the size of a walnut.
2. Recurrence of papilloma.
3. Haemorrhage from malignant growth.

JOSEPH, in a symposium on bladder tumors stated that in malignancy, fulgeration was only of value in checking bleeding. For papilloma it was curative.

SCHUTHEISS, in reporting 14 cases of papilloma operated upon, recurrence took place in each.

HILDEBRAND and WHITE indorsed the method.

YOUNG, reported a series of 23 cases and stated that operative results were bad. He believes that high frequency current treatment for papilloma is thoroughly satisfactory but recommends it being vigorously applied.

The method of BEER has thus the unqualified endorsement of many. It is one of the great advances of surgery.

SEPTIC TEETH: THEIR ETIOLOGY AND SURGICAL TREATMENT.[1]

JOSEF NOVITZKY, D. D. S.
SAN FRANCISCO.

(Continued from the August issue.)

DEAD TEETH.

Teeth from which the dental pulp has been removed, or which retain a suppurating pulp in situ, are seldom found in good condition. They seldom cause local soreness and consequently they were not suspected of being the cause of systemic ills until the extensive use of the Roentgen ray attracted attention to the varying degrees of bone density surrounding their root ends.

These septic root ends extending into a pus cavity in the jaw, or a mass of septic granulation tissue, are frequently referred to as being a "pyorrhea."

Picture a dead tooth with a goodly portion of its structure composed of decomposable organic matter.[5] This dead tooth, with its putrescent pulp canal and dentin in various stages of offensiveness, is held in its socket by the pericemental fibers and the cementum, or cement substance, which is laid down from the joint cells against the tooth root, independent of any vitality in the tooth itself. The cementum undoubtedly prevents the tooth being removed from the body as a sequester. It also prevents any septic drainage from the root, with the exception of the apical foramen, which is rarely covered by cementum. From this apical foramen toxins or bacterial fluids find ready access to the cancellous bone of the alveolar process. This septic invasion is probably aggravated by gas formation from the infected dentin.

What good purpose could prompt a series of expensive tooth scaling to "cure" this septic mess? Poking and scratching at the cemental surface of the root, would have no effect so far as the prevention of drainage and infection from the dead tooth dentin and the pulp was concerned. Nor, would it offer opportunity for the removal of the necrotic process. If a flow of pus is visible through a fistula, or by way of a partially destroyed tooth socket, a diagnosis of abscess with appropriate adical surgery is correct.

If there is no flow of pus externally and this is so in four-fifths of the cases observed, a diagnosis of "pyorrhea" which means a flow of pus, would be inaccurate in every way.

If this thoroughly dead, septic, infiltrated dentin is recognized as being the problem that it really is, when attempts at sterilization are undertaken, it will be found that many times the dentin has become so thoroughly infiltrated, foul and discolored, that sterilization is impossible, even if desirable. This is the reason why root amputations should be restricted to those teeth that have not become wholly necrotic. The amputation of their root ends and curettement of disorganized areas in the alveolar process, would remove carious process and necrosed root ends, but it would not prevent reinfection from the amputated stump.

The extraction of these teeth as commonly done, is a serious mistake. It results in imperfect removal of carious alveolar process. Roentgen ray examinations, operation, and bacteriological cultures have demonstrated septic fibrous granulations contained in cavities in the jaws as long as 30 years after the extraction of an abscessed tooth from the immediate locality.

CORRECT TREATMENT.

The surgical procedure that I recommended in 1905[6], I have rigidly adhered to, in all my cases where radiographs and examinations indicate radical tooth removal. The gums are incised and a liberal flap of mucous membrane and periosteum is stripped up off the alveolar process exposing the entire length of the outer plate covering the roots of the affected tooth. The outer plate of bone is removed exposing the tooth roots, in order to use them as a guide to pathological conditions at their apices.

My operative procedure offers the maximum op-

[5] John S. Marshall, of San Francisco, has frequently called attention to the 28% organic matter that enters into the composition of tooth dentin. He has also commented on, the fact that this organic matter is subject to the laws of decomposition. (This is certainly borne out by the odors that are quite apparent in possibly 98% of these dead teeth.)

[6] S. F. District Dental Society, March, 1915.
Surgical Section, S. F. County Medical Society, May, 1915.
Panama Pacific Dental Convention, Sept. 1915.
St. Luke's Hospital Clinical Society, Dec. 1916.

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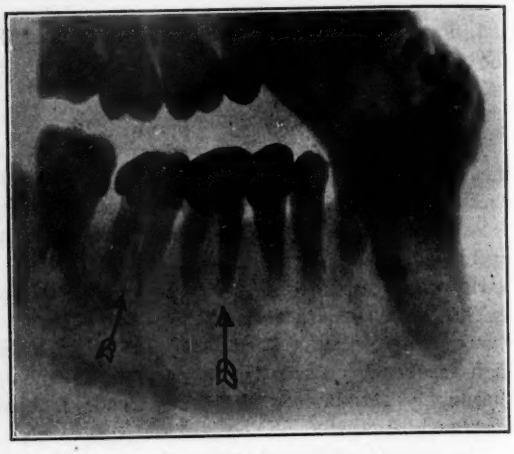

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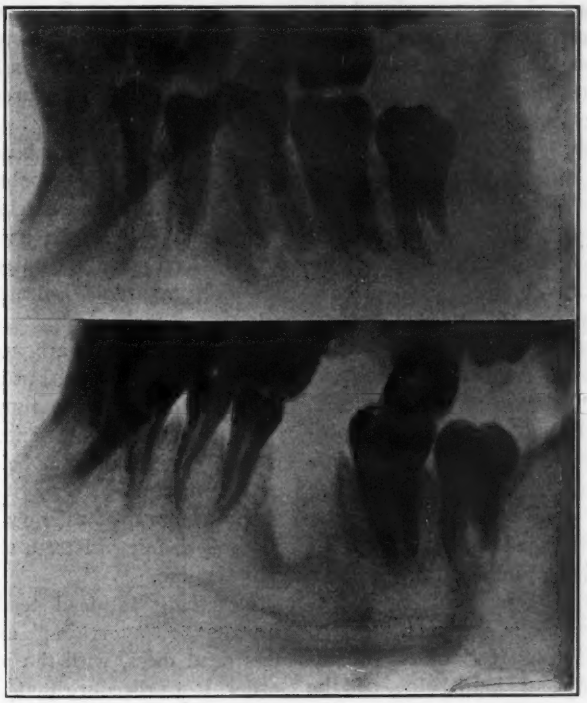

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portunity for ventilation and drainage, direct access to, and complete removal of tooth and disorganized jaw bone. Those teeth that are ankylosed are easily detached with the chisel. Accidental fractures of the alveolar process due to excess or misapplied force in difficult extractions, are prevented, as the teeth are dissected out, many times their removal being accomplished with tissue forceps. Also complications such as antral, inferior dental canal, and anterior nasopalatine canal drainage, are plainly apparent.

THEORETICAL OBJECTIONS TO MY TECHNIC.

Embolism and general septicemia will not be any more in evidence, when following my technic, than when these septic teeth are simply extracted. It should be understood that radical surgical interference in acute suppurations is delayed, if possible until the severity of the inflammatory course subsides.

The objection to making an operation out of what many would consider a tooth extraction, must give way to the educational campaign that is necessary, before any new work is accepted.

The objection that deformity follows my operation, is based on insufficient knowledge of the parts. Bone formation invariably fills in the operative wound and many times, it is impossible to see any evidence of extensive bone removal, six months after operation.

The dangers of septic retention resulting from incomplete dental surgery, are very real. This septic retention would not be apt to cause local pain, unless the suppurative process involves the cribiform canals of the jaws. When the area is confined to the cancellous bone, local reactions will seldom be observed. There is, however, no reason for believing that such an area will not cause systemic or remote complications. Suppurations of upper teeth may invade the anterior nasopalatine canals, antrum and upper air passages; while suppurations of the lower teeth may infect the inferior dental canal. The troubles following such involvement are many times of a very serious nature and the probabilities are that if the operative technic I have suggested were generally followed, such involvements would be considerably lessened.

I have found no mention in medical or dental literature of the fact that septic retention following the extraction of abscessed teeth is of common occurrence. I have repeatedly called attention to this complication, and desire to emphasize it very strongly. The proper removal of these teeth should take the form of radical surgery.[7]

[7] Published in Pacific Dental Gazette, May, 1915.
Published Cal. State Journal of Medicine, November, 1915
Published in Pacific Dental Gazette, February, 1917.

SUMMARY.

Traumatic, septic gingivitis, with or without pericemental detachment, would be more appropriate for a diagnostic expression than the term "pyorrhea."

Local trauma, thrombosed and sclerosed blood vessels, also septic embolism, must be taken into consideration when searching for the cause of a "pyorrhea." Systemic irritants may cause a lessened blood supply to the dental structures, followed by a pathological atrophy with possibly suppurative sequela.

Serumal deposits are not the primary cause of pericemental troubles, but are probably mainly due to a thrombosed blood supply.

With the possible exception of diagnosis of cause, "pyorrhea" work belongs to the field of general dentistry.

The removal of salivary deposits and the polishing and cleaning of teeth should be the work of the dental nurse.

Referring to dead teeth and carious alveolar process as "pyorrhea;" and treating and scaling this dead mess, with the idea of "curing" the disorder, is a procedure that is followed by some self-styled "Pyorrhea specialists."

The causes leading up to the common presence of dead, necrotic teeth and alveolar process in the average adult jaws, can be laid directly at the door of dentistry. Dead teeth simply obey the laws governing the decomposition of dead organic matter and break up into malodorous gases, fats and oils. These teeth usually bear evidence of dental interference. Dental histories confirm this. Many times pulps have been removed from healthy teeth to allow more heroic manipulation during prosthetic work.

A certain low percentage of teeth become devitalized from septic emboli. Cases in my practice, that have been traced to this cause, are invariably associated with suppurative complications in other regions of the jaws and sometimes in the air passages and with mastoid infection.

If there were any basis of fact in the idea that dead teeth are commonly infected from the blood stream, because of their lowered resistance, we should expect to find all dead teeth and their surroundings so affected, and not only those that bear unmistakeable evidence of putrefactive changes. It seems irrational to look to the blood stream for offensiveness to create the destruction generally seen around the apical vent of dead root ends; when such an abundant septic supply is present in the contents of the pulp canal and in the dead tooth dentin.

The lessened play of dead teeth in their alveolar joints is not due to an increased blood supply to the joint, resulting from a cutting off of the pulp supply, as has been suggested; but is distinctly due to an ankylosis, probably resulting from a breaking down of blood vessels of the alveolar joint, followed by a conversion of the pericemental connective tissues into bone. This is borne out by operative findings. The conditions present could well be compared to certain types of arthritis.

The few dead teeth, that are apparently not causing any destruction of process, are probably walled off by a deposition of cementum or calcic exudate, which fills the apical foramen.

It would be a mistake to regard any dead tooth as above suspicion. Dead teeth seldom stand an occlusal stress of more than 100 pounds, while vital molars may stand up to 300 pounds pressure, with little inconvenience. [8]

The argument has been advanced that dead upper molars are caused by antral suppurations. If this were generally so, we should expect to find a higher percentage of teeth that did not bear evidence of dental interfernce, involving their pulp We should also frequently expect to find necrotic areas of the antrum walls independent of the necrotic process and septic granulations involving these pathologic antra that develop from tooth infection. Dead, septic teeth are not necessarily confined to the maxilla.

Dead teeth requiring removal should not be extracted, but should be removed according to the technic I have suggested.

Osteo porosis, sub periosteal drainage, drainage under the antrum membrane, also directly into the antrum, or the cribiform canals of the jaws, will be apparent when my procedure is followed; though the radiographic examination will at times be negative. Before an opinion is rendered as to the presence or absence of jaw infections, we must make examinations of jaws in which teeth are present, as well as of jaws that are edentulous.

Slide 15—This shows the need for a thorough examination of jaws that are edentulous as well as those that are not edentulous, when we are searching for hidden centers of infection. Thick yellow pus was evacuated from this hidden center. A dead tooth had been extracted from this region some years before.

Slide 17—An interstial atrophy. It was plainly apparent after the soft structures had been retracted from the body of the mandible and a small opening made with a gouge, through the outer plate. Cultures from this region were all sterile, while the molar and cuspid region showed strains of Streptococci Pyogenes. The tissue specimens, anterior and posterior, were simply granulation tissue showing a leucocytic infiltration.

Slide 18—Before operation.

Slide 19—After operation. There has been no disturbance of the inner plate of the mandible.

Slide 20—Before and after operation, showing clean results of the author's operation for the removal of septic teeth. Notice the thickened cancellous structure in the front of the socket. This is clearly seen when the periosteum and gums are retracted.

Slide 21—This explains more eloquently than words, the need for radical surgery instead of tooth extraction.

Slide 22—This woman had her breast removed seven years before. Two years after the removal there was recurrence of the growth. This was followed by operation. One year ago, an induration was noticed just above the clavicle on the affected side. There was also an indurated mass under the angle of the jaw on the operated side. This was thought to be malignant. The removal of the lower 1st and 2nd molars with quite an extensive amount of carious process and also of septic bicuspids in the upper jaws, resulted in a complete disappearance of the indurations; resolution being encouraged with moist heat. The patient has also noticed that after the jaw surgery, the arm on the affected side, no longer swelled and stiffened. This patient had almost decided to submit to a radical operation for a malignant growth.

Slide 23—This result was also quite spectacular. This woman had continuous severe headaches. She also had an exopthalmic goitre. Through removal, under local anesthesia, of necrosed teeth and jaw was followed by permanent relief from the headache. This case and many others that I could mention, should serve to attract attention to the splendid results and complete recoveries from systemic complications, following thorough dental surgery.

Slide 24—A neuralgia case. This shows the results of dental surgery that is not thorough. Notice the ragged alveolar ridges with minute drainage ways to the antral membrane and also the periosteum. This follows the extraction of teeth without removal of infected alveolar structure. The alveolar absorption is so extensive, through this septic retention, that it will be extremely difficult to find means of retaining a plate for artificial teeth. A clean removal of carious process at the

[8] Black's Special Dental Pathology, 1915.

time of tooth extraction, is invariably followed by fresh bone formation. I have plaster models and Roentgen ray plates demonstrating this point.

Slide 25—This shows the immediate post-operative appearance following the author's operation for the removal of septic teeth.

Dead teeth, when in a pathologic state, should not be extracted; but should be thoroughly dissected out. This procedure is more apt to insure thorough removal of disorganized structure. Dangers of septic retention are reduced to the minimum. Loss of function, through inability to wear a plate, which follows septic retention and long drawn out suppuration, is avoided. Rapid healing generally follows. New bone growth invariably takes place. New bone growth is never seen where the parts are allowed to run a long drawn out suppurative course.

HEAD BUILDING.

OBSERVATIONS UPON CERTAIN TYPES OF TOXIC GOITER.

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Only those types of toxic goiter that have come under recent observation will be considered for the purpose of discussing the etiology, pathology and classification.

The following classification of Plummer and Wilson is accepted as being the most practical:

This type of goiter degenerates from the colloid goiter after years of quiescence. Average time 14 years.

Exophthalmic Goiter		*Simple Goiter*	
Clinically true exophthalmic goiter Toxic hyperplastic	79%	Clinically toxic non-exophthalmic	17%
Clinically toxic non-exophthalmic Toxic hyperplastic	21%	Non-toxic goiter non-hyperplastic	83%

Medical treatment will not be considered.

Several of the patients suffering from exophthalmic goiter have been treated with the *x*-ray applied over the region of the thymus after the method of Haberer, but the results have been indifferent. Treatment longer continued might have been more satisfactory, but it so happened with the patients under observation that this was not possible for one reason or another.

The injection of boiling water first advocated by Miles Porter, has not been employed. In my opinion it possesses great value but the goiters in this series were not those in which it was indicated.

At the present time a number of surgeons are employing the method and they think very faborably of it. It is claimed that the injection of boiling water causes the formation of scar tissue so that any subsequent operative procedure is carried out with greater difficulty, but if care is employed and the water is injected into the gland structure is not apt to occur.

The immediate indication for its use is in those cases in which operation on account of the severity of the symptoms is contra indicated. The treatment mitigates these so that patients can be subjected at some future time to thyroidectomy with a reduction of risk.

A point that should not be lost sight of is the danger of destroying too much gland substance by the boiling water so that hypothyroidism will result. This is more apt to occur in the small gland.

Boiling water can be employed easily without anesthesia and is practically painless, for the only sensation that is associated with discomfort is during the introduction of the needle through the skin. As the thyroid gland is devoid of sensation no particular pain is experienced when the water is introduced.

Ligation of the superior thyroid vessels is followed by results similar to those that are attained by the injection of boiling water.

It was Kocher who first advocated ligation of the superior thyroid vessels and the subsequent experience of all operators has confirmed the value of this operation which undoubtedly has saved many lives that would have otherwise been lost. While it is not curative, it nevertheless relieves the gravest symptoms of hyperthyroidism so that subsequent thyroidectomy can be more safely performed.

This operation is by no means free from danger and in my experience it may at times be followed by the severest manifestations of hyperthyroidism.

Ligation of the thyroid vessels frequently requires gas anesthesia, for the patient in whom the operation is indicated is one who is badly poisoned and the excitement incident to operation under local anesthesia more than offsets any possible damage that may result from the gas narcosis.

In comparing the methods one advantage that injection has over ligation is that no anesthesia is necessary, which is of great importance.

Acute Toxic Hyperplastic Goiter With Exophthalmos:

CASE I. Mrs. R. Age 38.

P. H. Was well until about three years ago when she had domestic trouble which ended in a divorce and as a consequence her previously nervous condition became more aggravated.

At this time she noticed a swelling in her neck which has gradually grown larger.

She has had repeated attacks of tonsillitis for which her tonsils were removed one year ago. The tonsillectomy seems to have aggravated her condition for the goiter has grown rapidly since then. She has suffered some from pyorrhea. Diarrhea has been marked. Perspiration profuse. She has had attacks of edema that was confined to her legs between the knees and ankles. These attacks were of short duration and always disappeared when she went to bed. She has lost 14 pounds in the last few weeks.

P. E. Patient has a fine tremor of the face and chest muscles. It is very marked in her hands. She has an exophthalmos of the third degree with the usual signs. Skin is moist. Dermatographia is present.

There is an enlargement of both lobes of the thyroid with dilatation of the superficial veins. There is a marked thrill over the entire precordium with an increase in the area of cardiac dullness. Systolic pressure 110. (In connection with exophthalmic goiter my experience is that the blood pressure is seldom high and does not seem to be of any importance as far as the condition is concerned.) Blood 6,600 leucocytes; 62% polynuclears; 36% lymphocytes. Pulse 140.

When seen by me she was on the up-grade as far as her hyperthyroidism was concerned. She had gained some in weight and her general condition was improved as the result of medical treatment together with the employment of the *x*-ray. She represented the type of true exophthalmic goiter of the second degree with severe symptoms of hyperthyroidism.

As she was the mother of two children and her responsibilities were great, despite the fact that her general condition was improved, I felt that ligation of the superior thyroid vessels as a preliminary procedure was advisable. While it seemed to me that a radical operation could be safely done I did not feel warranted in subjecting the patient to the risk, so that ligation of the superior vessels was decided upon.

November 23, 1916. Under morphine and gas anesthesia the upper poles of both lobes were tied off with catgut. The operation occupied about 30 minutes and was without incident. At the beginning of the operation pulse was 132 and it remained about the same throughout its duration. Fourteen days later the patient left the hospital. The exophthalmos was materially lessened and the general symptoms were much improved and she said that she was much better than before the operation. Her pulse ranged from 100 to 104. The size of the gland was diminished. Palpation showed it to be much softer than prior to the operation. Heart action much relieved. Our idea is to remove the gland in a few months if nothing unforeseen occurs.

It is in this type of case with marked symptoms of hyperthyroidism that life can be saved by resorting first to the operation of ligation of the superior thyroid vessels.

Abdominal condition as a possible cause of excessive heart action.

CASE II. Miss H.

P. H. Hysterectomy nine years before.

On November 19, 1916, the patient was admitted to the hospital on account of dizziness following a fall. She was exceedingly nervous and had been unable to sleep since her accident. Perspired freely. Exophthalmos of the second degree. Heart action excessive.

She has a very diffuse violent apex beat that is transmitted all over the chest. 72% polynuclears. Moderate enlargement of both lobes of the thyroid. Her sight is bad and she uses thick lenses to enable her to read and sew. She was kept under *x*-ray and medical treatment from May 29th to July 31, 1916. At this time her heart was found to be enlarged transversely, the apex beat reaching the nipple line. There was a loud systolic murmur at the aortic area. Marked tremor of the hands. Eyes showed an exophthalmos of the second degree. No improvement as the result of *x*-ray treatment.

As she was in much better health than she had been, appetite good and gaining in weight, it was decided to resect the gland. Double lobectomy was performed.

Specimen: The gland was moderately cellular with marked fibrosis.

June 4th, the second day after the operation, her pulse ranged between 80 and 100. She recovered well and five days following, the exophthalmos was noticeably less. Her heart action was still very turbulent. She was complaining of severe pain in her abdomen and vaginal examination revealed a mass in the pelvis which was probably in consequence of the hysterectomy.

Under ordinary circumstances operation would not have been thought of but her pain was so severe and her constipation so difficult to relieve that on June 29th, twenty-seven days after the thyroidectomy, her abdomen was opened. She was still wearing her glasses for reading and her heart action was very irregular and violent. The thumping of her heart could be felt all over the front of her chest.

At the operation an adherent ovarian cyst the size of an orange together with a fibroid of about the same size were removed from the stump of the uterus. The patient behaved badly during the operation but at its completion her condition was satisfactory. The post-operative period was without incident and she at no time showed any evidence of hyperthyroidism.

On July 14th, fifteen days after the laparatomy and forty days following the thyroidectomy, it was noted that her heart trouble had subsided in a most extraordinary manner. The apex beat was no more marked than in a normal individual. The exophthalmos was greatly diminished and she no longer required the thick glasses necessary before and she stated that she could read well without them.

The result in this particular case was very interesting. The opinion of those who saw the patient

was that the subsidence of her symptoms was due entirely to the abdominal operation and that the thyroidectomy played an unimportant role in the improvement. This of course, could not be determined as it was quite within the range of possibility that the removal of the thyroid may have been the deciding factor. As the glasses were discarded immediately after the second operation I was convinced that this symptom was influenced by the relief of the abdominal condition.

I have seen a similar result in another patient that had been under observation. The heart condition was almost terrifying; the apex beat could be seen and felt all over the entire chest. There was a marked thrill together with cyanosis and dyspnea. At no time were any murmurs heard. The patient had been seen by Dr. Jellinek and myself. She had some old adhesions which, however, were never considered seriously. The pain became excessive so that hysterectomy was performed on acount of the adhesions. Almost immediately after the operation the heart action improved and the patient has been entirely free from symptoms ever since.

Moderately Toxic Hyperplastic Goiter with Exophthalmos:

CASE III. A. W. B. Age 43.

F. H. Negative.

P. H. No tonsillitis. Five years ago patient contracted scarlatina from which he never fully recovered. During the past two years he has been more excitable than formerly and his tremor has become so marked that at times he is unable to sign his name.

One year ago he contracted influenza. He was examined by his physician and his pulse was found to be 140. Following this attack, while living in Philadelphia he developed zoster on the left loin. At this time which was during the past winter, he perspired profusely especially during the cold weather. Since residing in San Francisco the sweating has not been present. He has never had diarrhea.

P. I. In August 1916, he consulted his physician who found him suffering from a classic exophthalmic goiter. His pulse ranged from 112 to 120. His former weight was 188. Present weight 155. Leucocytes 7,800. 59% lymphocytes. Heart action violent.

P. E. Each lobe of the thyroid was about the size of a hen's egg. There was an exophthalmos of the second degree. Von Graefe's and Stellwag's signs were present. There were few blood vessels traversing the gland. There was a very coarse tremor. The tumor was smooth and firm.

Under treatment the pulse dropped to 96 and there was a gain of twelve pounds in weight. In view of the increase in weight and the improvement of the general condition, operation was decided upon.

The increase in weight is a point of the greatest importance in my opinion in influencing surgical interference. Loss of weight indicates a recrudescence of the hyperthyroidism and operation should never be performed at this stage but only when an increase in weight takes place.

Upon admission to the hospital, the pulse was 120. He was was treated after the method of Crile and his goiter was "stolen." Gas and ether were used and he was placed under the anesthesia without any idea that he was going to be operated. Following the operation he stated that his impression was that what was being done to him was part of the preliminary treatment. During the operation his pulse ranged from 120 to 126. Large pieces of both lobes were resected. Hemostasis was controlled by a continuous catgut suture. Drainage was made through a stab wound.

Duration of the operation 1¼ hours.

Specimen: The gland was of the hyperplastic type, moderately rich in cells. No excessive vascularity.

It is our belief that toxicity is shown by the vascularity of the gland. The hypertoxic gland is readily torn and hence difficult to remove because it is easily cut by hemostats and ligatures. This is due to its excess of cellular substance. The less toxic the gland has been clinically, the more fibrous tissue and the fewer cells are present.

Plummer has found that the macroscopic picture of the gland practically corresponds to the clinical condition mentioned, which is borne out by our experience.

Two hours following the operation, pulse 120. Midnight patient very restless; temperature, 102.4°; pulse 140. Ice bag over the cardiac region. One-sixth gr. doses of morphine when needed for restlessness. Continuous enteroclysis.

November 1, second day. Patient perspiring freely. Pulse 120. Experienced some difficulty expectorating mucus.

November 14, fourth day. At this time the exophthalmos was not so marked and the tremor was obviously diminished.

November 20, tenth day. Patient left the hospital in excellent condition. The exophthalmos is receding and the tremor is not nearly so marked.

December 2, three weeks following the operation, patient's condition is excellent and he states that he is ready for business. He was advised to take a vacation for several months until his nervous condition has been improved.

It should be emphasized that these patients do not rapidly regain their equilibrium as far as their nervousness is concerned, and it is important that they should not be allowed to return to their duties for some time but should be given an opportunity to convalesce under the most favorable conditions.

December 7. Patient still has a tremor which is more evident when he puts on his collar, otherwise it is very much improved. The exophthal-

mos has receded but he states that his eyes were always prominent.

February 20, 1917. Four months after the operation patient is completely restored to health. There is almost complete recession of the exophthalmos and the result is very satisfactory. Pulse 88 most of the time. Tremor has quite disappeared.

It is in this type of patient that the best results following operation are obtained as is shown by the rapid convalescence. Following the operation all of his symptoms were quite quickly relieved and his excellent condition one month after the operation can be explained by the moderate amount of cellular hyperplasia present together with a considerable quantity of fibrous tissue in the gland. As mentioned above the absence of blood vessels on the surface of the gland was in favor of moderate toxicity, so that this condition was one that offered excellent prognosis as far as operative result was concerned.

CASE IV. B. C. Age 34.

F. H. Negative.

P. H. Negative. No tonsillitis

P. I. About eight months ago the patient developed a phlebitis in the left thigh, the cause of which could not be explained; this process extended from the groin to the ankle joint. As far as he knows he never had any fever. Shortly after he became very nervous and had, as he states, "terrible" palpitation of his heart which he would feel when in bed but he did not feel the nervousness when in a reclining position. He perspired a great deal all over his body. He never had diarrhea.

About six months ago patient noticed that his eyes began to get "starey." Weight 123. Weight two months before he entered the hospital, 95. When he entered the hospital, October 18, 1916 his weight was 103. One month prior to the operation he had a trace of sugar in his urine but as a result of diet this disappeared. In passing it might be stated that this is not an uncommon condition and that the presence of sugar in the urine in exophthalmic goiter does not appear to be a serious consideration and frequently disappears under diet.

The patient had an exophthalmos of the second degree with the presence of the usual symptoms; there was a coarse tremor in both hands. Heart action exceedingly active. Pulse 128. Blood showed 50% lymphocytes.

As his condition was very much improved over what it had been and having gained considerably in weight, it was felt that he was a good subject for double lobectomy which was carried out. Prior to the operation his pulse was 150; under the anesthetic which was gas plus ether, pulse was 126. The operation occupied an hour and ten minutes and at the conclusion his pulse was 150.

Specimen: The gland was of the hyperplastic type. It was very vascular and soft and cut easily when the hemostats were applied suggesting a high glandular activity. With this vascular and cellular activity one would expect to find a struma of greater severity than was present, but if this process had been allowed to go unoperated there would in all probability have rapidly resulted an exophthalmic goiter of the third degree with all of its grave manifestations.

11 p. m. Pulse 120.

October 19. Patient was exceedingly nervous and required large quantities of morphine to keep him quiet. He drank 88 oz. of water in twenty-four hours which was most unusual. Many of these patients are unable to drink on account of the soreness of the throat. For the following two or three days pulse ranged around 100; very irregular. Quite nervous. After the fourth day the exophthalmos began to subside.

November 6, which was nineteen days after the operation, pulse 88; the exophthalmos was markedly diminished.

December 9. Patient was discharged. Heart action practically entirely subsided.

January 27, 1917. Three months after the operation his condition is excellent. The exophthalmos is gone and the heart action is normal so that the patient considers himself cured.

As far as the etiology is concerned, there was no history of tonsillar trouble. That he had a phlebitis previous to the development of the goiter suggests this disease as the etiological factor. The complete subsidence of the exophthalmos three months following the operation does not always occur.

CASE V. Miss B. Age 19.

P. H. Typhoid fever six years ago. Complains of nervousness, headache and loss of weight.

Her present illness commenced three weeks ago. While diving flat into the water she struck her neck and immediately after complained of swelling there and a sensation of choking. These symptoms lasted about a week and then subsided. The swelling gradually increased and she consulted a physician. Her condition gradually grew worse and five weeks following the accident she was admitted to Mount Zion Hospital.

December 5, 1916. Patient had an exophthalmic goiter of the second degree. There was a generalized tremor in her hands, arms and body. Head free from tremor. The thyroid was diffusely enlarged with marked pulsation along its lower border. Both lobes were involved as well as the isthmus. She had a marked dermatographia over her neck and shoulders; this was more evident during attacks of nervousness. When the patient became calm it would fade away. This had existed for more than a year. Pulse 142. Patient very nervous and excited during the examination. Blood pressure 136. 44% lymphocytes. During the past few weeks she has been sweating profusely while sleeping, not while awake. Her best weight has been 133. On admission to the hospital she weighed 110. Weight, 127 at the time of the examination.

Percussion shows no dullness suggestive of thymus enlargment. Roentgenography negative. Heart generally enlarged in both diameters. There was a question as to whether a girl of nineteen should have her thyroid removed. As experience has shown that certain forms of the adolescent

goiter should not be operated upon because frequently operation may not be followed by satisfactory results. She was placed on medical treatment for some time with no relief of symptoms. After a thorough consideration of the situation it was decided to remove the thyroid. She had gained several pounds in weight and was on the up-grade as far as the hyperthyroidism was concerned. As stated above, my belief is that the only time to operate goiters successfully is when the patients have commenced to gain in weight which is the evidence that the hyperthyroidism is no longer acute.

December 8. Double lobectomy was performed and pieces of the gland the size of an English walnut were removed from both lobes. Pulse at the beginning of the operation, 108; at the conclusion, 110. Duration of the operation fifty minutes.

Specimen: Gland of the hyperplastic type. It was fairly fibrous and not very vascular, all of which indicated limited glandular activity. This is the type of gland that offers a good prognosis with a rapid convalescence.

December 9. Pulse 150. Patient presented all of the signs of acute hyperthyroidism. Exceedingly nervous and very excitable. Morphine was given and an ice-bag kept over her heart. Continuous enteroclysis.

Morphine is the important remedy to relieve both heart action and nervousness and it is probably the best form of medication that we have.

December 30. Twenty-second day after the operation, patient discharged. The exophthalmos is markedly diminished. The nervousness had subsided and altogether she was greatly improved.

Moderately Toxic Hyperplastic Goiter With Exophthalmos and Pressure Symptoms:

CASE VI. Miss E.

F. H. Negative.

P. H. Has never had tonsillitis.

Last October she first noticed that she swallowed with difficulty and that she also had a choking sensation. At this time she had a swelling in her throat and was very nervous and had palpitation upon the slightest exertion. She was having a good deal of worry at this time.

She has atrophic tonsils and a chronic pharyngitis. Otherwise the findings are negative. Blood, 7,400 white blood cells; 59% lymphocytes.

She suffers from dyspnea and when her head is bent backwards she has a great deal of difficulty in breathing. Pulse 120.

January 7, 1917. Patient has an exophthalmos of the second degree. Usual symptoms present with an enlargement of the right lobe and some thickening of the isthmus. What is most apparent is the marked working of the alae nasi indicating the dyspnea she suffers from and for which she demands relief.

Diagnosis: Exophthalmic goiter; toxic symptoms of the first degree with pressure symptoms.

Operation: The right lobe was resected as well as the isthmus uncovering about 2 inches of the trachea. The operation was without incident, as was the recovery. Immediately after the operation the pressure symptoms were relieved.

Present condition: Patient's exophthalmos has receded; the tremor and the pressure symptoms have entirely disappeared.

Acute Toxic Hyperplastic Goiter Without Exophthalmos:

CASE VII. M. P. Age 35.

F. H. Unknown.

P. H. He has very bad teeth. No tonsillitis or other evidence of infection. Complains of loss in weight, nervousness and trembling of his hands and body. He first noticed a swelling of his neck four years ago. At this time his weight was 90 pounds. He was sent to an institution because of his mental condition where he remained a month. He subsequently improved until he weighed 200 pounds. He has had a nervous shaking of his head, limbs and body as long as he can remember but it has not been as bad as it is at present.

P. I. Six months ago he began to lose in weight and dropped from 200 to 125. He had an attack of diarrhea which lasted for two weeks. At that time he perspired very easily.

January, 1916, he entered the hospital. His weight was 115 pounds.

P. E. There was no exophthalmos present. The teeth in the right lower jaw were badly diseased; there was marked pyorrhea. There was a large goiter involving diffusely both lobes of the gland. The isthmus seemed comparatively free. Very large pulsating vessels could be seen traversing the surface of the gland.

Heart: The apex beat was diffuse and could be seen all over the chest and extended beyond the mamnary line. The second tone at the apex was obliterated by a murmur. The aortic tones were not clear. Pulse 160. Roentgenography showed a large dilated heart involving the right as well as the left side.

February 7, 1916. One month after he entered the hospital an unsuccessful attempt was made to operate after the method of Crile. He was not placed under the anesthetic without his knowledge. Under gas both of the upper lobes of the thyroid were ligated. The operation was done in a short time and was without incident. His pulse prior to the operation was 160 and it was practically the same at its completion.

P. M. Pulse 150. Sweating profusely. The following day, pulse, 120. No particular evidence of hyperthyroidism as a result of surgical interference.

February 9. Patient doing well. Heart not acting as violently as before. Not sweating as profusely. Pulse around 100. The nervous symptoms seem much better. There is evident improvement in the patient's condition although his hands when extended shake as violently as before.

One week following the operation, pulse, 94. Heart action better, more regular. Patient states that he feels better than before the operation, more quiet and not so irritable. His hands still shake badly. The heavy thumping of his heart is no longer felt.

Prior to the operation the man was talking loudly and continuously which he was unable to control. Since the operation this has entirely subsided.

February 18, patient states that the action of his heart scarcely bothers him at all. The cardiac impulse is not so marked. Pulse about 100.

February 23, nineteen days after the operation he was allowed to go home. There were still many signs of hyperthvroidism but he was better than before the operation. Palpitation, restlessness and irritability were all improved and he stated that he felt "lots better;" pulse ranged between 100 and 110.

Patient did fairly well for three months when he suddenly developed a heart attack which was associated with an exceedingly, irregular pulse tachycardia and dyspnea. He presented all of the signs of acute "delirium cordis" and his condition was very grave. Under care his condition improved and he remained under medical supervision for three weeks.

In September 1916, which was seven months following the ligation, patient entered the hospital for lobectomy. Weight, 135. Pulse, 85. Blood showed 9,200 whites; 44% polys; 54% lymphocytes. Urine, triple plus albumin. Coarse granular casts. January, 1916, his weight was 115.

The thyroid tumor was as large as before. Ligation had no effect in reducing the size of the gland. In view of the great improvement in his condition together with an increase in weight, it was decided to resect the gland.

September 15, 1916. Under gas and morphine anesthesia lobectomy was performed on each side. Bleeding was very profuse on account of the large size of the great number of blood vessels that were present. The operation was concluded however, without much difficulty.

Specimen: It was seen to be the type of goiter that was very rich in cell structure. One would expect to find this form of gland as the cause of the acute hyperthyroidism as shown by the excessive heart action, etc. There was little fibrous tissue present. It is in this type of toxic goiter that the hemostats cut through the thyroid tissue because it is so rich in cells and as a consequence bleeding is frequently profuse. The large vessels traversing the neck are also quite characteristic.

P. M. Pulse 125, intermittent. Condition satisfactory. Ice bag applied to precordia; this is a matter of routine in all these cases. Enteroclysis of tap water. Morphine to control the heart action and nervousness.

September 16. The day following the operation the patient suddenly developed an acute attack of hyperthyroidism. Pulse hardly perceptible and very intermittent. He was in a state of collapse; the skin at first was hot after which sweating commenced. Digitalin was given intravenously.

September 17. Patient's condition improved.

October 13, which was one mouth after the operation, patient was discharged from the hospital. Pulse, 100. All of his symptoms, nervousness, heart action, weakness and sweating had subsided to a marked degree.

February 10, 1917, which was six months following the lobectomy, patient feels almost restored to health. He has no throbbing of his heart. He has an intention tremor of his hands but it is not suggestive of thyroid condition. Present weight, 155; a gain of 40 pounds during the past year.

As far as the etiology is concerned, pyorrhea was the only evidence of infection which could be recognized.

Diagnosis in this case was made upon the presence of a very large thyroid gland together with sweating and excessive heart action; there was no exophthalmos present. Why patients of this type do not develop exophthalmos has never been determined. The question of importance when we first saw the patient was how much of his condition was due to his thyroid and how much was the result of other causes, but the marked improvement following the ligation of the thyroid vessels, showed rather conclusively that hyperthyroidism was the underlying cause of most of his trouble. He showed great improvement following the ligation, another instance of the value of this procedure as a life saving measure.

It is just in this particular type of patient that the statistics have been so favorably influenced by the selection of the time for and the character for the operation.

Summary:

Etiology: 1 followed pyorrhea, 1 followed tonsilitis, 1 followed phlebitis, 1 followed scarlatina, 1 followed direct trauma from swimming, 2 followed domestic troubles.

Blood picture: In four of the patients there was a lymphocytosis of over 50%, which conforms to Kocher's observation that a high lymphocyte count occurs with great frequency in exophthalmic goiter.

Weight: None of these patients were operated upon until there was an increase in weight which showed that the acute hyperthyroidism had subsided. This is the only time that operation can be performed with a minimum of danger.

Ligation of the Superior Thyroid Vessels: This is of great importance and should be performed in those cases where the risk of lobectomy is not warranted. The operation is not curative but in many instances the condition is so improved that lobectomy can ultimately be performed with the maximum of safety.

Injection of Boiling Water: This accomplishes results similar to ligation but the advantage boiling water has, is that it can be easily employed without anesthesia.

Exophthalmos: Practically all of the patients in this series showed a recession of the exophthalmos.

Why this symptom disappears in one patient and not in another has as far as I know, never been satisfactorily established.

Relation of the Clinical Syndrome to the Pathological Findings: Plummer has found that the microscopic picture of the gland corresponds fairly accurately to the clinical picture, *viz.*, that in those glands that have cellular hyperplasia with a high vascularity, the activity of the process is in direct proportion to the symptoms. The greater the number of cells the higher the toxicity and vice-versa. Our experience in these cases has borne out this observation.

Results of Treatment: All of the patients were presented at the meeting of San Francisco County Medical Society, February 20, 1917.

The results as shown were very satisfactory and all were considered cured. The cured cases with one exception represented the toxic goiter of the second degree which indicates that permanent damage has not been done to the heart or other tissues and prognosis is good. The pulse rate has been reduced to practically normal.

Our experience has convinced us that exophthalmic goiter is a surgical disease and should be operated upon early before permanent damage is done to the heart and other organs. When done early the operation is free from great danger.

With each recrudescence of the hyperthyroidism some permanent damage occurs so that the longer the disease is permitted to continue the greater the danger from the operation.

All toxic goiters have periods of quiescence and medical men assume that their efforts are curative because the symptoms have subsided during the period of treatment. These are the factors that lead to great harm and it is believed that when medical men are convinced that exophthalmic goiter is a surgical disease, it will be shorn of many of its terrors.

Fat Embolism and Shock.

Fat, often in large quantities, is known to enter the blood vessels in traumatic shock, the essential feature of which is a characteristic fall of blood pressure.

A similar fall, with the same resultant symptoms of shock, may be produced experimentally by the injection of fat into a vein.

Fat in the blood stream is known not to be injurius *per se;* its injurious effects are the product of fat embolism.

Fat embolism is a cause, though not necessarily the only cause, of shock after fracture tof the bones.—W. T. Porter in the *Boston Medical and Surgical Journal.*

CONSERVATIVE OPERATION ON THE OVARIES.

H. Stuart MacLean, M.D.,
Richmond, Va.

It is unfortunate that surgery has been divided into conservative and radical. There should be, indeed there is, but one kind of real surgery, and that will always be conservative. We may have conservative and radical operations, but the most radical operation when justified by the exigencies of the case becomes conservative surgery. Proper surgery always has for its objectives conservation of life, health and function. In the field of pelvic surgery this subject has received especial emphasis. For a time radicalism predominated, largely because surgeons were dealing with an indefinite symptomatology and hoped more or less blindly to evolve a startling panacea for a trying class of cases. Psychic cases of indefinite symptomatology were referred by troubled physicians to the surgeon as a last resort, and the surgeon seized upon a few vague evidences of pelvic disorder from out the mass of jumbled symptomatology and operated, too often to his own discomfort and discredit. At one time double öophorectomy was commonly performed for vague and uncertain indications and was justified on more vague and more uncertain pathology. Because an ovary was small and irregular, or it may be, somewhat enlarged, or contained one or more cysts, it was gravely indicted, condemned and removed. It really seemed at times as though some surgeons had little conception of what constituted a normal ovary, much less what abnormality constituted sufficient reason for removal. Our old acquaintances in the surgical field, cirrhotic and cystic ovary, have been bereft of their pathological and surgical importance. An indefinite train of nervous and mental symptoms were blamed on these ovaries for want of a more convenient "goat," but such ovaries and such symptoms have been effectually divorced in the court of sad and bitter experience, although even now surgeons are still performing radical and unjustifiable operations on the ovaries.

In order to approach the subject satisfactorily, we must first review our knowledge of the function of the ovary. As a functionating organ it has been considered simply as concerned in ovulation and, through the elaboration of a harmone, menstruation. We cannot explain the comparatively abrupt cessation of menstruation at the menopause on any known histological or physiological basis. Norris (*Am. J. Obs.*, 1910, LXI, 203) has attempted to establish cessation of menstruation on the ground

of the formation in the ovarian cortex of scar tissue, and Culbertson in a recent article quotes Norris as elaborating this theory into an explanation as to why the multipara arrives at the menopause later than the nullipara. The periods of gestation and lactation produce a corresponding suspension of ovulation and hence fewer corpora albicantes are formed. But when we come to apply this theory in some of our surgical cases, it will not stand the test; for instance, we may have occasion to remove one and a half ovaries from a woman between 20 and 25 years of age, yet menstruation will continue and will be expected to run to the normal time for the menopause.

Even if these were the only functions of the ovary, we would have every incentive to preserve ovarian tissue. The right of conception and motherhood must not lightly be denied to any woman. When we deliberately remove ovaries for a lesion which manifestly has not entirely destroyed their functionating value, and for the cure of symptoms concerning which there is considerable doubt that they arise from that lesion, we fail to exercise that reasonable judgment which the patient has a right to expect and demand.

A conservative operation may always be supplemented by a second; a radical cannot. The fact that menstruation will never return exerts a profound mental influence at times despite the patient's apparent willingness before the operation to "have everything taken out." The ill-advised wishes of the patient must be resisted as well as the radical inclination of the surgeon "to take a chance."

There are excellent reasons for believing that the ovaries are intimately concerned in internal secretion, and the evidence is almost all in favor of such relationship. The experiments of Loewy and Richter (*Arch. of Physiol.* 1889, p. 174) and others show conclusively that the ovaries form a specific substance which increases oxidation of the tissues. This agent enhances metabolism, increases the hemoglobin content of the blood and produces an increase in respiratory exchange. Graves (*Am. Jour. Obs.*, 1913) states, "after sexual maturity the ovary exercises a trophic influence over the other internal and external genital organs." Novak (*Journal of the A. M. A.*, October 28, 1916) assigns to the corpus luteum the cause or control of menstruation and emphasizes that it works in association with other ductless glands of the body. Heimann (*Int. Obstr. Surg.*, December, 1913) ascribes to internal ovarian secretion the property of reducing the number of lymphocytes, showing a variation of from 18 to 22 percent in their number at menstruation and between periods. To say the least, the evidence is too conflicting to justify a positive opinion that the ovary performs no function after the menopause. It is well known that those cases of double öophorectomy followed by marked nervous and mental symptoms have a higher percentage of persistence of serious nervousness and mental disorders than would be found in a similar number of non-surgical climacterics.

Gordon (*Journal of the A. M. A.*, October 17, 1914) in his study of 112 cases brings out some very interesting figures for our consideration. In 34 of his cases double öophorectomy was performed for vague disturbances in the abdomen, together with a train of indefinite nervous symptoms. None of these patients was permanently benefited. Nine showed an immediate improvement in the preexisting functional disorders, but shortly thereafter the former conditions returned. "In all the cases the former nervous and psychic phenomena have become aggravated in weeks and months following the operation." In 75 out of the 112 cases, complete hystero-öophorectomy was performed. "The removal of the diseased organs removed the localized discomfort but in the months following the operation, symptoms of a more distressing nature began to develop. In the large majority of my patients the former nervousness not only remained but became accentuated." Among his conclusions I would quote the following: "As in the removed organs healthy portions of tissue were invariably found, it is to be supposed that the removal of the latter is in some relation to the morbid phenomena observed after the operations. The logical conclusion seems to be that one must be very cautious in advising operation on the generative organs and the tendency should be to oppose as much as possible the removal of any amount of normal tissue found in the uterus or ovaries. No operation should be advised on healthy organs if a woman complains of vague nervous symptoms."

This article is particularly valuable as it gives us a view of some of the end-results and what the family physician has to contend with in the aftercare of those cases which have had double öophorectomy and made a satisfactory surgical recovery. It has long been the contention that while it was right and proper to practice conservatism when dealing with diseased ovaries alone there is no use in considering the ovaries or in making any special effort to retain them or any portion of them when the uterus is removed, as the latter operation effectually terminates menstruation and renders the ovaries useless and negligible. Here is where we believe surgical judgment has been bad and has been contrary to what we can assume to be the

character of the ultimate ovarian function. If we cannot be absolutely certain that the ovaries have no function beyond ovulation and menstruation we must not sacrifice those organs as a matter of expediency, or because their removal is a feature of a well-developed technic. I have reviewed the last 62 hysterectomies for disease of the uterus in women who had not yet reached the climacteric. None of these cases had both ovaries removed and less than half of them had any ovarian tissue removed. Forty-nine of the cases have been followed and in only one case is it reported that the patient suffered any excessive or prolonged nervous and mental symptoms. In this one case, the family physician reports that about seven months after the operation she became very nervous and depressed, developing a mild melancholia which persisted for about ten months, when she apparently recovered.

We have no reason to believe that the function of the ovaries in contributing to internal secretion does not continue after the menopause; in fact, it would be unreasonable to suppose that such is not the case. In a period of over eighteen years I have made it a rule never to remove both ovaries completely from any patient without at least making the effort to retain a portion of comparatively normal ovarian tissue from one of the diseased organs. Exception, of course, is made in cases of malignant tumors, but otherwise, irrespective of the age of the patient, some ovarian tissue has always been left. In hysterectomy for uterine diseases both the ovaries are invariably left, irrespective of the patient's age, unless they are so badly diseased as to be a menace to the patient's health. The mere fact that an ovary contains one or more cysts is no reason for the removal of that organ.

Considering the large number of cases in which we find small multiple cysts in one or both ovaries and the comparatively small number that attain great size, we are forced to the conclusion that most of these cysts rupture spontaneously or may possibly be absorbed, the determining factors as to the size of an ovarian cyst probably being the thickness of the limiting membrane and the degree of vascularity or nourishment of the organ. It is doubtful if these small cystic ovaries are harmful or even painful to the patient. Usually it is only when they attain such size as to be mechanically troublesome that it is necessary to resect the cyst or remove the ovary. Exception would be made, of course, in the case of such ovaries, which by reason of inflammatory conditions, adhesions, or otherwise are sensitive and the source of pain and distress. It is very seldom that we will have to deal with a case of cystic degeneration of the ovary so extensive that a portion of the ovarian tissue cannot be found somewhere near the pedicle sufficiently normal and of sufficient size to warrant its retention. Not infrequently ovarian tissue which might be saved is sacrificed rather than lose the opportunity of removing a big cyst intact for the purpose of demonstration. It should be borne in mind that such portions of ovarian tissue as may be thus saved will probably be deficient in blood supply on account of the ligatures which it has been necessary to place about the pedicle. It is, however, an easy matter to cover them with omentum, or better still, cover them with a piece of peritoneum from the broad ligament, thus assuring a new blood supply in case the old should be obliterated.

Conclusions: The ovary is probably vitally concerned in the scheme of internal secretion and while such function may gradually decrease after 45 years of age as do the activities of many of the other organs of internal secretion, yet we have no reason for believing that such function ceases abruptly at the menopause.

The fact that nervous and mental symptoms following artificial menopause are apt to be more violent and more lasting that those following the natural menopause is additional evidence that the ovary has been concerned in something else besides ovulation and menstruation.

Irrespective of the age of the patient some ovarian tissue should always be left.

THE USE OF RADIANT LIGHT AND HEAT IN THE TREATMENT OF WAR WOUNDS.

William Benham Snow, M. D.,
New York City.

The use of radiant energy as applied from incandescent light bulbs arranged in suitable reflectors has advanced to a scientific plane in connection with the treatment of impaired metabolism and the surgery of open wounds, and it deserves general recognition and adoption.

Since Finsen, in the closing decade of the nineteenth century, introduced the use of the concentrated sun's rays and reflections from the arc light in the treatment of the forms of lupus, light, as a therapeutic measure, has grown in favor. Those who have investigated its actions as an activator or energizer in conditions of near health and as a restorative in conditions of disease have become justly enthusiastic. For considerable time it has been used in connection with hydrotherapeutic methods. Later observations seem to have demonstrated that it is the radiant energy rather than the hydrotherapeutic applications that fill the most important rôle

in increasing secretion and elimination. Little by little the scope of indication has widened, as various investigators have demonstrated more fully the effects upon important organs and local inflammation.

The use of light by Finsen was directed from the antiseptic point of view, it having been long realized that the ultra-violet rays are the great sterilizers in nature, purifying matter on the earth's surface and destroying germs in running water. Finsen applied light with the idea that the bacteria in the skin were destroyed by the ultra-violet projections. At that time little thought was given to the fact that the hyperemia induced by the heat applied was also a large factor in destroying the germs, bringing as it did a larger number of phagocytes into the field by stimulation. This, however, in latter times, has become a dominant idea in the application of radiant light, from the fact that the ultra-violet rays penetrate to but a slight depth beneath the surface of the skin. More has been derived in the treatment of local infections from the action of light, *per se*, or from the hyperemia induced, for undoubtedly both play their part, and both are beneficial.

The penetration of bone is readily demonstrated by placing a small 10 c. p. light in the mouth and noting the illumination through the antrum of the bones of the cheek. This demonstrates the penetration from within outward. That it penetrates from without inward is also established. Furthermore, the heating of the tissues is as deep as the penetration produced by the transformation of energy. That the administration of radiant energy has the effect of increasing the local hyperemia, with gradually diminishing energy as the radiations pass to deeper tissues, is self-evident, the less penetrating rays spending their energy near the surface, while those of greater wave length penetrate to deeper parts. The external hyperemia is therefore naturally most marked. As the most penetrating rays of longer wave length are very abundant, the heat effect is marked to a considerable depth. The penetration of light, as variously estimated, is from four to six inches beneath the surface.

The value of hyperemia as a therapeutic agent requires no argument, for it is self-evident that where hyperemia is present, as induced by a natural physiological stimulus, there is (1) increased nutrition relative to the increased quantity of blood passing through the tissues; (2) the activity of the cellular elements is also stimulated, with a consequent increase in local metabolism; and (3) a greater number of phagocytes are carried in and out through the tissues. Elimination, phagocytosis and the tissue-producing processes of the body are thus accelerated. The administrations become a matter of degree, which must depend upon the length of the radiation and the temperature tolerated by the patient. It has been found, from the practical point of view, that toleration that is within the range of comfort, not extreme, is the best rule for intensity of dosage, and that the average period of application should be at least for one hour.

In the administration of light much depends upon the structural features of the apparatus employed. Sunlight as a source of application is inconvenient except in a general way, and better applied in ordinary cases through a window pane, which eliminates the ultra-violet rays. The latter cause unnecessary superficial irritation and sunburn, except in the case, perhaps, of tuberculous children living in altitudes where sunlight rays are employed for

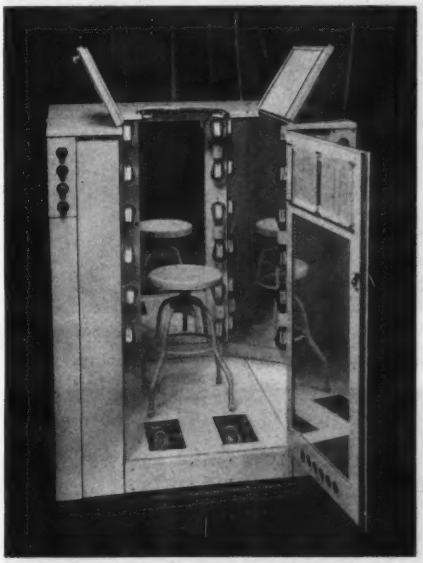

Fig. I. Modern electric light bath showing octagonal arrangement of the lamps, cut out boxes, reflecting panels, thermometer case, front door ventilators, and a sanitary collarette, a combination which produces a therapeutic instrument of great value in light bath technic.

treatment. In such conditions, wherever tuberculous foci have been successfully treated, these methods have been carried out. Ordinarily speaking, incandescent light is the choice of light for the effect of hyperemia and for general metabolism. Various types of lamps have been used from time to time.

The light bath, for general administration of radiant energy, has been constructed on various lines. Light baths are made in which the patient sits and is exposed from all sides to rays from incandescent lamps arranged around the cabinet. It has been demonstrated that such a cabinet should be well ven-

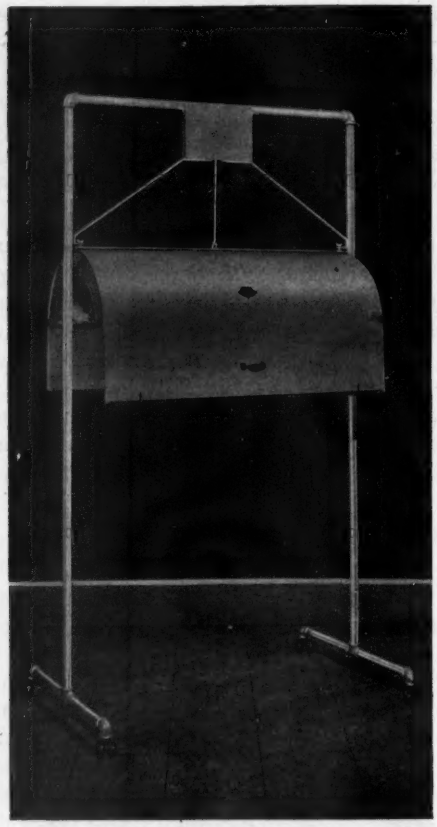

Fig. II. Author's light applicator with stand and conductor, balancing attachment for moving it from cot to cot in a hospital ward, and equipped for raising and lowering as required.

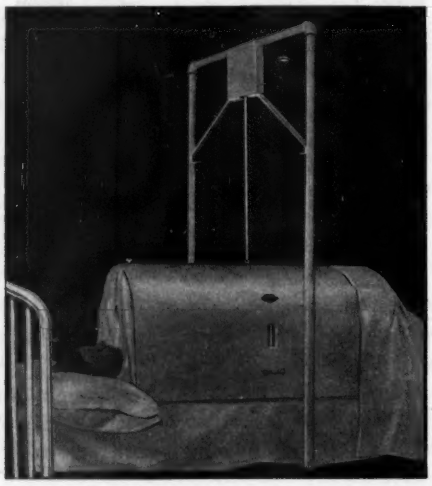

Fig. III. Applicator as described in Fig. II. in position giving patient a treatment in bed. This applicator operates from any 600 watt lamp socket.

tilated rather than closed tight. (See Fig. 1.) Baths are also made to administer light with the patient in the reclining position. These have advantages over the light baths for administering body treatment in the upright position for feeble patients or for those who might have an attack of vertigo while sitting upright. There is no special reason why longer applications will not effect the same results upon general metabolism, and the excretory processes, with the back not exposed, as when the light is applied to all surfaces of the body, because the effects are largely due to the reflex actions of light and heat from the end-organs. The secretions are thus increased, which is, in a large measure, due to the heat and does not require exposure of the whole body to produce the beneficial effects. When the patient is lying face upward the light is projected to the part of the body affected, which ordinarily derives the most benefit from the local application.

The use of a *portable reflector,* four feet in length and adjustable as to height and width, as designed by the author (see Figs. 2 and 3), is a very practical method of administering the light both in the home

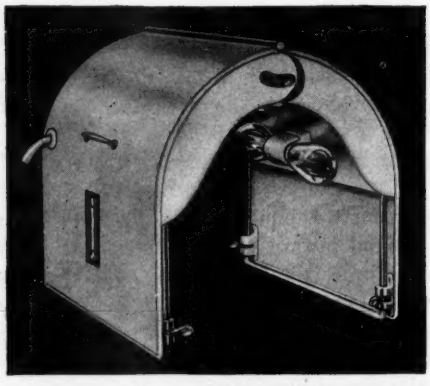

Fig. IV. Author's light applicator built on smaller dimensions than that shown in Figs. II. and III., for treatment of children and of small parts such as limbs.

and in the hospital, the effect being regulated by the distance, in each application, at which the apparatus is placed from the body. This form of light will be of inestimable value in the home and hospital wards, where patients may be treated in their beds or on cots. A similar apparatus (Figs. 4 and 5) may be used for making applications, locally, to portions of the trunk where light will be applied for special treatments, as by the small applicators (Figs. 6, 7 and 8) arranged to be adjusted at different distances from the surfaces of the body.

A principle of utmost importance in the use of portable lamps is that they must be so constructed that the light from the reflecting surface must be projected in parallel rays not focussing or divergent. This, in point of construction, will depend upon the distance between the light and the reflecting surface. Many small lamps now on the market, some for sale

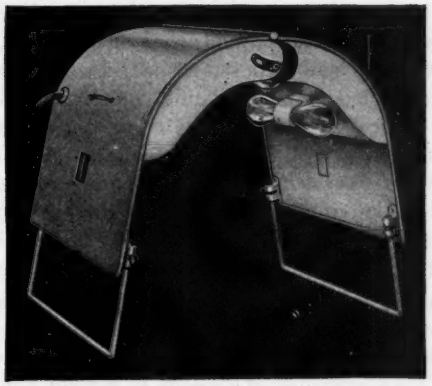

Fig. V. Same applicator as shown in Fig. IV. adjusted to fit a large patient. The mechanical and electrical construction of these outfits are first class in every way and conform to the National Board of Fire Underwriters.

by leading manufacturers, are relatively worthless, because the rays focus near the lamp. Lamps should be constructed so that the lights are placed within the apparatus at correct distances, that they will be reflected as parallel rays. Apparatus of this sort are of inestimable value for use in the household and hospital wards, and particularly valuable for treatment of the wounded at the front, of which I shall speak particularly later.

The physiological actions of light, as suggested in the preceding lines, should be understood by those who investigate and employ the measure. In the first place, there is no contraindication for the use of light except possibly in hot weather. The local and the constitutional effects should both be considered. The local effect of radiant light and heat is to increase local metabolism, nutrition and phagocytosis and increased circulation induced with hyperemia and acceleration of the circulation. These very important principles must be recognized, for wherever heat is applied to the surface of the body the effects are to increase the flow of blood through the part which carries off the excess heat, thereby preventing local burning. Heat and cold produce practically the same effects, and on the same principle; for tissue preservation, increased flux of blood saving the tissues from extremes of heat and cold. The first effect of cold is to blanch the surface, but if the reaction is vigorous, the blood supply is immediately accelerated, the warm blood is cooled, carrying away the "excess of cold," thereby maintaining locally the normal, or near normal, temperature. When heat is applied, likewise, the stimulating effect is to reflexly increase circulation, carrying away the excess of local heat. So, as has often been said, heat and cold are, in a sense, similar—both induce local hyperemia. In a low condition of vitality it is not prudent to apply cold, because the vitality is not sufficient to create a renewed reaction against the exposure. In all cases, however, heat may be applied, and in the lower conditions of vitality it will always have an agreeable effect, improving both the local and the general conditions. The reflex stimulation of the peripheral nerves by the application of intense local heat has, furthermore, a responsive effect upon the spinal centers.

Fig. VI. Small therapeutic lamp of 200 watts for use in making local applications to various parts of the body. It is light in weight and can be attached to any ordinary lamp socket.

The constitutional effects of radiant light and heat are demonstrated therefore to both increase the local and general nutrition and incidentally to accelerate all of the processes of metabolism.

The therapeutic indications for the employment of radiant light and heat, from the point of view set forth, are very many.

It has been found to play a most valuable rôle in the treatment of local septic infection where applied, before suppuration, over local areas of infections, by increasing the local phagocytosis, it leads to the destruction of pyogenic bacteria, preventing the extension of the infection; and if applied after pus is evacuated it hastens recovery. In the former instance it anticipates the further development of the pyogenic bacteria, aborting the process; in the latter it arrests the process and promotes repair. To effect such results the application should be practically continuous. Under this head should be considered the treatment of *carbuncles, boils and whitlows, mastoiditis, otitis media, sinus and antrum disease and anthrax. In cases of early local infection*

the application of light for periods of one and two hours, twice daily, is effectual in arresting the processes, but in severe cases the applications had best be made continuous.

In erysipelas it has been demonstrated repeatedly by numerous observers, and is beyond question a fact, that long applications of light directly to the surfaces with as strong radiations as can be com-

Fig. VII. Showing the interior construction of lamp as illustrated in Fig. VI. The parabula of this lamp has been scientifically plotted in such a way that the rays of light are reflected in parallel lines. There is no focal point no matter at what distance from the patient the lamp is operated. This gives an abundance of light and heat.

fortably tolerated, will arrest the process and cause a complete clearing of the inflammatory areas in from two to three days. In early cases the response is very prompt. In very advanced cases it takes longer to cure, but it is effective.

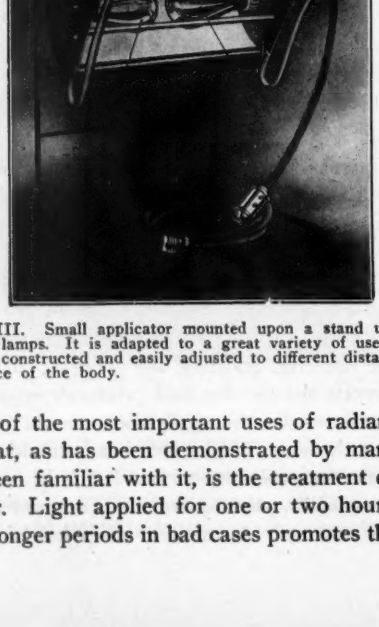

Fig. VIII. Small applicator mounted upon a stand using four 120 watt lamps. It is adapted to a great variety of uses, is substantially constructed and easily adjusted to different distances from the surface of the body.

One of the most important uses of radiant light and heat, as has been demonstrated by many who have been familiar with it, is the treatment of *open wounds*. Light applied for one or two hours daily or for longer periods in bad cases promotes the healing process. The hyperemia induced causes increased flow of blood and when an adequate anastomosis has not been established it is sufficient to prevent sloughing by dilating the arteries, and it also induces rapid repair. The striking feature of the application of this method of treatment is the healing of the surface without scars. Under the light no induration forms around the edges of the wound and the healing takes place rapidly without scarring. This is true even of large open wounds.

In this time of war carnage there is, therefore, an agent which offers great promise for relief and prospects for recovery of the wounded—the early and persistent exposure of wounds to radiant light and heat, using the various local applicators according to the requirements of each case. Furthermore, as applied to such wounds, a tendency to infection is anticipated, and except where fragments of soil, cloth and projectiles have been forced into the wound it is adequate to produce complete cure and repair. Each case is a law unto itself, but light will always play a valuable rôle in the cure of every case. This fact has been, to a degree, recognized by the physicians in France, and thousands of small lamps have been sent to the front, but means have not been provided to procure sufficient numbers of the applicators to meet the large demands. Furthermore, it is doubtful if the profession in general is aware of the value and importance of this method of treatment. Crile, of Cleveland, has referred to it in a paper published during the past year, and Oschner, of Chicago, in the discussion of papers, has laid stress upon the healing power of light.

The manipulation of the treatment is very simple, requiring less training than any other method of physical treatment and with no objectionable feature. The measure should therefore be introduced into general use for the relief of suffering, particularly of the soldiers at the front.

There is no condition in which radiant light and heat plays a more important rôle than in the treatment of *otitis media,* as discovered by Dr. Herbert F. Pitcher, of Haverhill, Mass., more than a decade ago. Despite the fact that it has been published again and again, it has not yet been generally recognized by the profession. It is a striking evidence of the hesitation of physicians to adopt methods that seem too simple, even when they are demonstrated to be of great practical value.

In conclusion, it cannot be urged with too much earnestness that light should receive a proper acceptance in therapeutics. For relief of infection and pain, and the prompt healing of wounds there is no agent so efficient to-day.

MEDICO-MILITARY EXPERIENCES.

We have arranged with 1st Lieut. A. E. Guedel M.R.C., U. S. A., a prominent anesthetist of Indianapolis, who is now on army duty abroad, for a series of letters describing his personal experiences and impressions. These letters will not deal with the scientific side of the work, but will reflect the daily life of the medical man at the front and describe the conditions which those of us who are abroad experience and of which those who are to go abroad will enjoy a foreknowledge.

The following letter is based on Lieut. Guedel's impressions of his active duty for two months in this country.—Ed.

Although I have not yet seen "active service" as one thinks of it in time of war, i. e., at the front, there are a few impressions that I have gained in the past two months of duty prior to sailing which I believe will be of interest to the younger members of the medical profession of this country.

There is not space in this sort of letter to repeat all of the interesting experiences of this new work, but there are one or two points which should be presented.

Before I mustered up the necessary courage to enlist in the Medical Reserve Corps of the army I was beset with doubts which were born of statements of my fellow-physicians concerning certain undesirable features of the service. Since I have been in the work I have already found that some of these statements were entirely without foundation in fact. Although my active service thus far has not been out of this country, I have been associated with the army service in person enough to be able to state from experience that many so-called facts presented to the young physician contemplating the service are entirely untrue. Where they can spring from I do not know. Certainly not from any fair-minded individual who speaks from experience.

For example, I entered this service with the impression that the medical reserve officer had rank but no standing or proper recognition of rank with officers of other branches of the service. I had been told and had read in medical journals that the average regular army officer looked upon the medical reserve officer as an inferior personage. If this is true, I have never had occasion to experience it. I have never had the pleasure of being associated with more courteous or with better men than the officers of the regular service, with whom I have come in contact. After entering the work my diffidence—almost amounting to fear—at meeting the regular army officer was soon dispelled. The most cordial reception, always of course tempered with dignity of station, by these men was most happily surprising. I was not made to feel that I was an inferior neophyte, with aspirations to something beyond my station. Neither have I been slighted in any way, but have always been given a most cordial recognition by my fellow-officers, no matter what their branch of service or their rank. This same manifestation of sincere good-fellowship seems prevalent among all grades, and the so-called superior mannerisms of the regular service men over the reserve officer have been conspicuous by their absence. I have never met a more human and generous class of men than our regular army officers. Many a tale of woe they must listen to and many entanglements they must straighten out for the inexperienced reservist, but they seem never to lose their patience. Of course, the reserve officer, wishing to learn something which, according to his rank, he should know but has not had the opportunity to learn, cannot intrude upon the privacy of his major or colonel or attempt to interrupt them in their busy moments without being made to feel their intrusion. Such is the case in civil life, and the same courtesy and respect to one's superior officer in the army must be accorded as one would display to his superior in civilian work. But the reserve officer receives the same courteous recognition of rank as does the regular in any branch of the service, and so long as he goes straight and thinks normally his relations will be of the pleasantest and he will at no time be made to feel out of place.

Inasmuch as all this was entirely contrary to my preconceived ideas, I am glad to be able to correct any impression of discourteous treatment in the mind of him who contemplates the service, such as is more or less prevalent at the present time.

Most of our work to date has been studying the art of rendering reports, the so-called paper work. This I was told would be irksome and, indeed, at first it was. However, I am sure the irksomeness was due to the fact that I had been impressed beforehand that it would be irksome. As a matter of fact, I cannot now conceive of a better line of training for the doctor than this paper work will give him. The average physician's weakest point in civil practice is his paper work, or the keeping of his records and accounts, and no opportunity whereby he can acquire the habit of thoroughness in his records will ever be afforded him that can equal the training that this army service gives.

Have I learned the paper work? I have not. I am just beginning to learn how to learn it. There is but one rule to follow. Be thorough. More than once have I traveled for miles to get a signature or a statement which I had neglected to get the day before. More than once have I had reports rejected because I had failed to fill in one or two words which to me seemed inessential, and I confess that at the time I may have felt that the department was too particular. But the department is right. Thoroughness is required and thoroughness to a degree that the average doctor cannot at first appreciate. But it is this same thoroughness that goes to make for his efficiency both in the service of the army and in the work of his civil life after this war is over. At first it was irksome. Now I can see the great advantage that it is to be for all of us who have to abide by it.

There could be no better training in systematic application to detail than the service in the medical or any other branch of the service in which the United States army affords.

The physician who enters this service will have to work hard to do our country as much good as our country will do him.

Would I enlist as I did if I had it to do over again? I would enlist: but sooner and with no such hesitation as I had before. I am enjoying the ex-

perience and am looking forward to the active field work which will be more strenuous, no doubt, but which I feel sure will more than repay me for my efforts.

If each day of the next few months carries to me the interest which has filled each day of the two months past, I shall have no reason to regret having entered this work, and I feel sure that such will be the case. And with this feeling of the good that I am receiving at the hands of our country I am carried on by an describable sense of pride that I am doing my little duty as it should be done for that country.—ARTHUR E. GUEDEL, *First Lieutenant, M. R. C., U. S. A.*

THE MEDICAL OFFICERS' TRAINING CAMP AT FORT OGLETHORPE, GA.

This is probably the largest single training camp in the United States. The Medical Officers' Training Camp at Fort Oglethorpe, Ga., was opened June 1, 1917. At this time the camp was indeed in a most primitive stage, but the pioneer surgeons were well provided for. The construction of the camp was a marvel in a succession of engineering and construction feats and much credit is due to those who had supervision of this work.

Almost as if by magic a modern army medical training camp sprang in a few weeks from the forest of historic Chicamauga Park—truly a remarkable transformation.

Colonel Henry Page, Medical Department of the United States Army, became commandant of the camp and he and his co-workers formed a most efficient administrative staff.

The camp is located just to the north of Lafayette Road, in Chicamauga Park, Georgia, not very far from Fort Oglethorpe, and ten or twelve miles from Chattanooga, Tenn., which can easily be reached by trolley or automobile.

The doctors are quartered in cantonment barracks, well ventilated and electrically lighted.

It is a genuine pleasure to be with so many men who have sacrificed home comforts and who have expressed their patriotism in terms of enthusiastic constructivity. New arrivals are scarcely quartered in their military homes when they begin to use the saw and hammer as skilfully as they do the scalpel and other instruments of surgery, and in a few minutes chairs, bookcases, shelves, writing-desks and other camp necessities are under construction, crude but satisfactory substitutes for home luxuries.

A sufficient number of shower baths has been provided and as many baths are to be had as desired. There are now under construction concrete showers with hot water tanks. I was delightfully surprised upon my arrival at camp to find such excellent food. It is abundant and well prepared under the most sanitary precautions. A daily inspection is made of each kitchen by a sanitary officer.

The drinking water is conveyed to the camp by pipe line. It is frequently analyzed to assure its bacteriological and chemical purity. Sewage disposal is under the most scientific army methods. Garbage is taken care of by the Page-Parker incinerator. This recent invention is a production of Colonel Page, of the U. S. Army, and Captain Parker, of the National Guard of New Hampshire, and it has increased the efficiency for consuming fluids over any former model from 400 to 800 gallons, an increase of 100 per cent, with a given amount of fuel. The sanitary condition of the camp is splendid and the men take a great deal of pride in keeping it clean. It is not a novelty to see two prominent surgeons playfully skirmish for the possession of a broom. The victor's enthusiasm is displayed by a thorough sweep of his quarters and around his company barracks. The entire camp is inspected daily by an army officer. Unfavorable terrain is corrected by proper ditching; soil pollution is immediately attended to; latrines are properly cared for; pools of water are drained or oiled, etc. A relentless warfare has been waged against mosquitoes and flies with remarkable success.

The instruction at the camp is indeed most interesting, the work being in charge of regular army officers assisted by experienced teachers. Reveille is at 5:45 a. m., and the day is divided into periods. The first period is set apart for the physical exercises. Breakfast is at 6:30. After breakfast each man is told how to make up his cot according to army regulations. At 7:25 the companies are marched to the drill field, where for two hours the men are put through various company and battalion maneuvers. After returning to camp the student doctors are called to the open-air auditorium, where lectures are given upon various medico-military subjects. After the noon mess quizzes are held upon the work previously lectured upon, and the physicians are marked according to their answers. One hour each afternoon is devoted to the study of French. During the remainder of the afternoon the men are free to do as they wish. Occasionally lectures are held at night. The men who, while at home, did not see any advantage in such a military training for a surgeon, quickly realize the necessity of it, and are impressed by the fact that a surgeon without this excellent training is useless to the medical corps of the army.

Upon the completion of the course the surgeons are given various assignments to regiments, field hospitals, evacuation hospitals, base hospitals, artillery and cavalry organizations, or wherever they can best serve the Government.

This curriculum may make it appear that this is all severe work with little recreation, but such is not the case. The Government realizes that the social side is too often neglected and the men are given every chance to get away from work. Quite often the various companies hold entertainments, vaudevilles and musical concerts. Colonel Page, who delights in Y. M. C. A. work, has been instrumental in securing an army Y. M. C. A. for the camp. There is now in press a souvenir booklet edited by student officers. This interesting paper will contain pictures of the regular and student officers, various camp organizations, camp views, etc.

Were I to be asked the most impressive feature of the camp, I would unhesitatingly say that it is the cheerfulness of the men and their willingness to accept the very few camp discomforts as a patriotic burden and a national duty. If there is the least bit of discontent in camp it is certainly not obvious, and I have not come in contact with a single physician who has not counted his course a delightful and instructive one.—ALLEN H. MOORE, *First Lieutenant, M. R. C., U. S. Army.*

Publication approved.—HENRY PAGE, *Colonel M. C., Commandant.*

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WALTER M. BRICKNER, M.D., F.A.C.S., Editor

NEW YORK, SEPTEMBER, 1917.

THE SURGICAL REMOVAL OF THE TONSILS.

In no other branch of surgery is the operator so dependent upon his instrumentarium for the success of his work as in rhinology. The working space in the nose is so confined that special instruments are often required to remove small pieces of tissue or of bone that cannot be reached or removed efficiently in any other way. It often happens that such an instrument is used only once in the course of an extensive operation to do an apparently insignificant duty. The peculiar character of their work has built up in rhinologists a faith in, and a dependence upon, certain types of instruments not found in any other class of surgeons. Unfortunately, they carry this propensity into other phases of their work where it is not needed. Tonsillectomy, which is an operation entirely different from an intranasal operation, therefore suffers. There seems to be an urge to devise special instruments by which to perform an entire operation at one stroke.

There is no question that in certain selected cases these operations can be done by everyone and in a larger percentage of cases—still selected—by men more skilled in the use of their special instruments. It is also admitted that the greater the skill of the operator in the handling of the special apparatus the wider the variety of tonsils that can be successfully removed. By this is understood, of course, the removal of the tonsil in its entirety without the loss of serious injury to the pillars.

The most earnest advocates of this or that newest and most improved form of instrument must admit that all tonsils in all individuals cannot be removed by their instruments and that in very many of their patients where the operation was entirely satisfactory, just as satisfactory service could have been performed by the old style guillotine.

The great objection to the operations of this type—all applications, modified, of course, of the principles found unsatisfactory in the guillotine and the instruments all modifications of the original guillotine—is that it is an entirely unsurgical procedure. The operation takes no notice of the anatomical peculiarities of the individual. Whether the tonsils be large and firm and protruding into the pharynx, or small and buried and friable, makes no difference. The ring is placed over the tonsil in the proper position, the tonsil is manipulated through it and the blade or the wire, as the case may be, is pushed home. The tonsil should be extruded from its bed, pushed through the ring, clear of the pillars of the fauces and removed completely without any tonsillar tissue being left behind or any other tissue taken along. This often happens. That it happens oftener when the surgeon is more skilled in the use of his particular instrument must be admitted. But it is, nevertheless, a highly unsurgical procedure. There are some tonsils bound to the pillars by adhesions. In those who have suffered from repeated attacks of tonsillitis, accompanied by peritonsillitis and peritonsillar abscess the adhesions are apt to be very firm and the tonsil more than apt to be soft and friable. Be the surgeon ever so adept in the use of his apparatus many of these operations cannot but be done thus with indifferent success. A very strong bit of evidence against the efficiency of the modified guillotine is the multiplicity of its modifications.

Let us compare the tonsil operation with another common operation in abdominal surgery—appendicectomy. The latter has been done so frequently that it has become standardized—in other words, there is only one way to do it. Different operators may differ in small details, but they are of only minor significance. No surgeon would have the temerity to suggest an apparatus that would seize the appendix, tie off the mesenteriolum, extract the organ and crush the stump.

Those who remove tonsils, surgically, all do about the same operation. The tonsil is grasped in a forceps—to steady it, not to pull it out; it is separated from its usually loose connection with the tonsillar fossa, either by blunt or sharp dissection, the

plica being cut by some operators and torn through by others and the tonsil removed by a snare, the principal function of which is to crush the vessels and stop bleeding. In the operation as done by some, the separation is achieved by dissection with a blunt instrument, and the plica tonsillaris is cut through with scissors. This enables the operator to free the upper pole of the tonsil, which is often buried above the junction of the anterior and posterior pillars and to separate any adhesions, the result of peritonsillar inflammation, between the tonsil and its bed. If the operation be done carefully every bit of every tonsil can be removed and the danger of injury to the pillars or other surrounding structures is reduced to a negligible minimum.

The anesthesia of choice is an ether vapor applied by means of a pump either through nasal tubes or through the mouth gag. The latter is preferable because the nasal tubes may injure or irritate the nasal mucosa. The field of operation is kept clean and free from blood and mucus by means of a suction apparatus, part of the anesthesia pump. The head is extended so that secretions tend to fall toward the roof of the pharynx. The position of the head and the use of the suction apparatus protect the patient from the danger of lung infection and abscess, a danger that has been pointed out by several writers recently and one which is not as remote as many think.

From every standpoint it would seem that the method of removing tonsils by means of special instruments is not the method of choice. There is no valid argument that can be brought against the ordinary surgical removal of the tonsils providing that it is done carefully and skilfully—considerations that we are entitled to expect in any surgical procedure.—L. G. K.

THE MEDICAL RESERVE CORPS OF THE ARMY.

The appeal to the patriotism and the humanitarianism of our profession is bearing fruit. The *Journal of the American Medical Association* recently stated that on August 4th nearly 9,000 physicians had accepted commissions in the Medical Reserve Corps of the army; that 1,300 applications were pending; that many had received but had not accepted [!] their commissions, and that over 100 new applications were reaching the Surgeon-General's office each day.

This bespeaks, indeed, a recognition by many of the great duty that has come to the physicians of this country. But the response is still far short of the pressing need. Adding to this number (less than 10,000) of Medical Reserve Corps officers, those in the regular Medical Corps and those in the National Guard, the total to date of medical men in the army is not over half the number required. Many have been sent abroad, many are engaged in important details and the new National Army will soon be in camp! If the total required is not forthcoming voluntarily—and we hope that, for the good name of our profession, it is—a selective draft of physicians will be necessary. The way to avoid being summoned is to go unsummoned!

Let no "specialist" deceive himself into thinking that his experience is not useful in the army. There is need of all specialties. He is a poor obstetrician who is not a good surgeon, and a poor pediatrist who is not a good physician. Uncle Sam is attending to this job very thoroughly! Specialists *are* needed, and are now being employed for the detection of tuberculosis, of cardiovascular defects, of mental disturbances, of visual and labyrinthine deficiences, etc. The specialists are, too, being trained and systematized in their work by intensive instruction—in roentgenology, in psychiatry, in sanitary science, in bacteriology, in military surgery, etc.; and several medical officers' training camps are busy in instructing reservists in military regulations, sanitary formations, the examination of recruits, camp and personal hygiene. Those who delay until the eleventh hour will probably not have the benefit of these instructions, will be correspondingly less useful and will be assigned accordingly.

We print again in this issue a form of application for commission, and once more we urge each of our readers who ought to but has not yet applied, to tear out this page and forward it, properly filled out and with the needed letters and certificate, to the nearest board of examiners for this service. Lest it appear that we are urging others to do what we have not ourselves done, it may be stated that both the editor and the managing editor of the JOURNAL have held commissions in the Medical Reserve Corps for several years and are on active duty.—W. M. B.

MEDICAL STUDENTS, INTERNES AND THE DRAFT.

An unexpected situation has arisen. In England the medical colleges and the hospitals were unfortunately allowed to be depleted early in the war and now, after three years, there is a great shortage of recent graduates and of trained young physicians to meet the military and civil needs of the country. It was intended that this should not happen here. Accordingly, medical students were instructed to complete their studies, and hospital

internes their course of training, before applying for commissions. It appears now that not only does the Draft law make no provision for temporarily exempting these potential medical officers from line duty as privates, but also that the number of medical students and hospital internes already drafted is very large. We are credibly informed that in some medical schools fifty per cent of the students were in the early draft calls. In some hospitals, in metropolitan districts where the percentage of exempted aliens is high, the draft upon the resident staffs is so large as to seriously threaten the work of these institutions. Under the law, too, these drafted young physicians, who had previously been instructed not to apply for commissions as medical officers, are now not allowed to apply! At this writing, at any rate, the law has been so interpreted.

THEODOR KOCHER.

The daily press recently brought the news of the death of one of the world's most eminent surgeons, Theodor Kocher, professor of surgery and director of the surgical clinic in the University of Berne, Switzerland.

While Kocher's name is indelibly written into the history of thyroid surgery, in which, by reason of his location, he had a vast experience, his development of the surgery of goiters is but one of his many achievements. His contributions to general surgery were numerous and important. Indeed, more than most surgeons, he had his own way of performing most operations and there are, accordingly, many procedures and many instruments that bear his name. His unique text-book of operative surgery, which has been through several editions in German and English, is replete with his original methods and his rich personal experiences.

Surgical Sociology

Ira S. Wile, M.D., Department Editor.

INDUSTRIAL ACCIDENTS DURING WAR TIMES.

It is natural that increasing the speed of industry should increase the accident rate. Recently compiled mortality statistics, covering the experience of the Metropolitan Life Insurance Co. (Dublin, Monthly Review of the United States Bureau of Labor Statistics, July, 1917), serve to indicate that the accident rate for workers of the United States during 1917 increased five points per 100,000 persons exposed, over the mortality rate for 1915. This evidence is particularly noteworthy in view of the fact that it is contrary to the general tendency towards a decreasing fatal accident rate.

The great development of munition plants and the expansion of all forms of industrial work providing the sinews of war have been responsible for a condition to which adequate attention has not been directed. The total number of deaths from accidents during 1916 was 6,635, as opposed to 5,861 during 1915. This would be a serious mortality if it were reported as the result of some battle in the East. It is no less significant as the evidence of human destruction in the struggle for industrial accomplishments.

Death from burns, the absorption of deleterious gases and traumatism by firearms evidenced high mortality rates than can be accounted for on the grounds of the employment of large numbers of inexperienced workers in fields of activity exposing them to dangers potentially contributing to fatalities from such causes.

A mania for speed has swept across the country and is more pronounced since the declaration of war than it was during 1916. Machinery accidents, railroad and street injuries are readily understood, but the influence of rush is best manifest in the tremendous increase of mortality from automobile accidents, which alone were responsible for three-fifths of the increase in the total accident rate during 1916.

In the successful performance of our industrial obligations the protection of the worker is of paramount importance. There are no definite statistical data at present available to demonstrate the relation between a higher mortality rate from accidents and the relative increase of permanent injuries as the result of industrial accidents. The death of workers is exceedingly serious at a time when men are required for participation in military problems. The toiler in the shop and factory

is a soldier actively working for the maintenance of the national defense. His death lowers the resources of the nation and contributes to its physical and economic weakness. In his death, however, he relieves the community of the necessity of caring for him and of carrying him as a liability instead of an asset.

The crippling of workers and the lowering of their permanent power to serve as effective units in the industrial army, not merely lower his productive and economic value but place a distinct financial burden upon the community and cast an additional strain upon the family development. This is effective in breaking down the standards of living and health.

It is of national importance that the efficiency of the industrial world be closely scrutinized in terms of human values. Maximum efficiency is not to be estimated solely in terms of output. In the long run a slightly lowered industrial output may represent the highest efficiency if therewith is joined the minimum sacrifice of animate working power. The experience of England, Germany and France has proven beyond cavil that in our present military crisis no effort should be spared to safeguard the physical welfare of the industrial and civil population. This becomes of increasing value as the national army is developed and a million men are removed from their ordinary occupations. One method of decreasing labor shortage is to eliminate the diseases and accidents incident to occupation which deprive employers of the services of men and which robs men of their right to labor.

Military exigency is an insufficient excuse for the sacrifice of the industrial workers through preventable accidents. The Council of National Defense is investigating at the present time various plans, designed to protect munition workers and others engaged in occupations directly related to the production of military necessities. Every co-operation should be given to those who are busily engaged in working out industrial plans leading to the improvement of factory conditions and to the introduction of an environment more favorable to the protection of life and limb.

War possesses a large number of hazards which are inherent and irremovable. An officer of the line who needlessly sacrifices the strength of his fighting forces is held to strict accountability and is liable to court-martial for failure in the performance of his duty. The large number of officers in the industrial army must be led or, if necessary, forced to realize a similar sense of responsibility for their co-workers in the industrial army. The accident rate must not be allowed to increase. A system of strict accountability, backed by law and public opinion, will serve to prevent any further increase in the accident mortality rate or the rate of injury during 1917. If this is not accomplished the nation will not be free from the accusation of negligence or indifference.

Book Reviews

The New System of Gynecology. By THOMAS WATTS EDEN, M.D., F.R.C.S., F.R.C.P., Temp. Major, R.A.M.C.; Vice-President of Section of Obstetrics and Gynecology of Royal Society of Medicine; Obstetric Physician, Charing Cross Hospital Surgeon; and CUTHBERT LOCKYER, M.D., B.S., F.R.C.S., F.R.C.P., Vice-President of Section of Obstetrics and Gynecology of Royal Society of Medicine; Obstetric Physician to Out-Patients, Charing Cross Hospital; Surgeon to In-Patients, Samaritan Free Hospital for Women. Three octavo volumes; illustrated. London and New York: MACMILLAN & Co., 1917. $36.00.

The title of the system of gynecology just issued from the Macmillan press is aptly and justifiably called the "New System" of gynecology. Gynecology has undergone so many progressive changes, its scope has so broadened, embracing as it now does abdominal surgery and even including that of the breasts and thyroid glands, which play so important a role in gynecologic function and pathology, that it was high time a modern presentation of gynecology should be offered to the medical profession. But although special mention is made of the surgical advances and dignity of gynecology as a specialty, a position which it has come to assume of late years since it has had such close touch with abdominal surgery generally, there nevertheless is sufficient weight attaching to the gynecologist as a physician. The monograph contributed by Blair Bell on Disorders of Function, forming part of Volume I, clearly disproves the altogether partial surgical boast of the editors disclaiming credit as physicians. In Bell's contribution are well comprehended most if not all of the important advances in gynecology during the past ten years. The surgery of the gynecologist is too well known and understood by this time in this country to require special elucidation. It is not, therefore, from this viewpoint that this New System of Gynecology will particularly appeal to American specialists.

It is to be regretted that in this very excellent large treatise there should not have been included for the sake of necessary completeness chapters dealing with the relationship of gynecology to the general organism. This might, to be sure, have been more to the physician's taste, it would have satisfied a natural demand of one who practices medical gynecology. Yet this is exactly what we have come to appreciate more and more, though we formerly knew and performed all the surgical operations for the relief of gynecologic pathology in which the present new system abounds. We have paid adequate attention to the vermiform appendix, to the kidneys, bladder and ureters, have even come to include gall-bladder pathology within the domain of gynecologic surgery. But the questions of physiology of the female reproductive organs which are so admirably treated by Louise McIlroy in this new work appear to us to be of perhaps greater importance at the present time than many of the other chapters.

These other chapters, however, are dealt with by men of such high position in English surgery and gynecology that they form valuable contributions as such. There has been enough room for two American collaborators, Franklin H. Martin and Howard C. Taylor, the latter contributing a chapter on vaginal coeliotomy and the former one on the after-treatment of gyneological operations. A notable feature of the work is the space allotted to the matter of radio-therapeutics, a subject in which the English have become expert and in which there is still room for a great deal to be learned.

As a publication we know of none within recent times that has equaled it in point of illustrations especially.

These are perhaps the best we have seen. Though the price of the three volumes is high for ordinary book prices, in this instance it is quite commensurate with their worth.

The Growth of Medicine, from the Earliest Times to about 1800. By ALBERT H. BUCK, B.A., M.D., formerly Clinical Professor of Diseases of the Ear, Columbia University, New York; Consulting Aural Surgeon, New York Eye and Ear Infirmary, etc. Octavo; 582 pages; illustrated. New Haven: YALE UNIVERSITY PRESS; London: HUMPHREY; Milford: OXFORD UNIVERSITY PRESS, 1917

While not revealing a profound historical scholarship, Dr. Buck has afforded us a very interesting, if somewhat disjointed, work upon a period of medical history with which the average physician is perhaps least acquainted. The author begins with Oriental medicine; he then passes to the brilliant era of Greek medicine, comprising such names as Hippocrates, Erasistratus and Herophilus. We then come to Roman medicine, in which, of course, the name of Galen looms largest. Mediaeval medicine follows, with important chapters on the Arabians and the Italians, and a delightful excursion upon the school of Palermo. Finally we come to the medicine of the Renaissance, in which we find some of the grandest names in the history of medicine.—Vesalius, Harvey, Falloppius, Sylvius, Boerhaave, Parë and Pavacelsus. The book lays no claims to originality; indeed, the author leans heavily upon Neuberger and Haeser, especially the former, who is quoted everywhere. Nevertheless, Dr. Buck has marshalled his facts ably, and the text is always readable. In the later portions, the sense of continuity is missing, and the reader is jumbled around from one portion of the world to another and from one branch of medicine to the other; all of which is somewhat disconcerting. The illustrations are well chosen; some of them are of unusual interest. On the whole, the book is a modest but welcome addition to historical medicine.

Diagnosis from Ocular Symptoms. By MATTHIAS LANCTON FOSTER, M.D., F.A.C.S., Member of the American Ophthalmological Society; Ophthalmic Surgeon to the New Rochelle Hospital. Octavo; 470 pages. New York: REBMAN COMPANY.

The present volume is rather unique not only in relation to ophthalmology, but also because of the original attitude of the author with regard to the manner in which his subject is treated. The book has not a single illustration, which is explained by the author, not by way of apology, but because, as he truly says, picture drawings are but a poor medium at best for conveying etiology and differential diagnosis, which are, after all, of greatest importance in interpreting eye symptoms. If illustrations are absent, it must be said to his credit that the author has succeeded well in presenting his subject so that any one can get clear conceptions of the pathology, symptomatology and etiology of ocular symptoms. This is due to a happy combination of a rare literary gift possessed by the author and a thorough grasp of his subject matter.

Diseases of the Genito-Urinary Organs and the Kidneys. By ROBERT H. GREENE, M.D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and HARLOW BROOKS, M.D., Professor of Clinical Medicine, University and Bellevue Hospital Medical College. *Fourth Edition.* Thoroughly revised. Octavo; 666 pages; 301 illustrations. Philadelphia and London: W. B. SAUNDERS COMPANY, 1917. Cloth, $5.50 net; half morocco, $7.00 net.

The fourth edition of this well-known book by Greene and Brooks has the additional feature of the newer treatment of malignant growths of the urinary tract. Their personal experiences with this, as in the rest of their work, are described without undue speculation as to physiology and pathology, which are after all still mooted ground. Rather from the more practical side are their results detailed.

Case Histories in Obstetrics, Groups of Cases Illustrating the Fundamental Problems Which Arise in Obstetrics. By ROBERT L. DENORMANDIE, A.B., MD., F.A.C.S., Assistant in Obstetrics, Harvard Medical School; Assistant Physician, Boston Lying-in Hospital; Surgeon to the Gynecological Department of the Boston Dispensary. *Second Edition.* Octavo; 497 pages. Boston: W. M. LEONARD, 1917.

The value of this book is exactly what the author has desired it to have. Personal cases with full discussion of their management, of difficulties encountered, of successful results and honest admissions of failures, with reasons for them, have a definite value for the practitioner of obstetrics. In such discussion certain points arise which are more directly cleared up than in text-books of the standard variety. Yet the one inevitable limitation of this book must be the insufficient number of cases that are necessary to illustrate the vast number of important emergencies and complications in obstetric practice which would require many times the space that is given to the present volume. In its present form it nevertheless fills an acceptable place in obstetric literature.

Urology. Diseases of the Urinary Organs, Diseases of the Male Genital Organs, the Venereal Diseases. By EDWARD L. KEYES, JR., M.D., Ph.D., Professor of Urology, Cornell University Medical College: Surgeon to St. Vincent's and Urologist to Bellevue Hospital. One volume, 908 pages with 204 illustrations and 18 plates. D. APPELTON AND COMPANY, New York and London.

This volume represents a well planned and rather comprehensive treatise on urology, for the practitioner as well as for the specialist. The general outline of the book is good and clear. Gonorrhrea is discussed in all its phases for 138 pages. Keyes stresses the caution needed to distinguish gonorrhreal infections from other diseases when no bacteriological evidence is at hand. Under the heading of Estimation of Renal Function, the author fails to mention the newer studies in blood chemistry as a guide to kidney function. Urea and creatinine estimation deserve attention in surgery as well as in medicine while the phenolsulphophthalein test is of decided usefulness. Also the author is mistaken when he states that the Ambard Coefficient is without value in this country. The Ambard Coefficient is really of help and can be applied more simply than hitherto, since McLean modified the formula and employed a slide-rule.

The final chapters contain a short symposium on syphilis. Throughout, the volume is well written, and shows an intimate knowledge of the subject. The therapy proposed is rational, tried, and established while the newer remedies are offered cautiously. All in all this volume should make a welcome addition for those interested in urology.

Cancer, Its Cure and Treatment. By L. DUNCAN BULKLEY, A.M., M.D., Senior Physician to the New York Skin and Cancer Hospital. *Volume II.* Duodecimo; 282 pages. New York: PAUL B. HOCHER, 1917.

The author points out the increasing necessity for the study of the conditions that produce cancer, as found in the human system. He admits the importance and value of the microscope and test-tube and animal experimentation, but he believes that careful consideration of the clinical aspects of cancer may yield much for the prophylaxis and care of cancer patients.

He discusses the influence of sex, occupation, race, climate, food, and though there is nothing new presented here, the discussion is clear and able. The chapter on mortality is based on the work of such authors as Hoffman, Williams, Wolff, etc. The final chapter represents a brief symposium on what Bulkley calls the "real cancer problem." Here he takes up the definite facts established by scientific laboratory workers, i. e., eight "positive" and eight "negative" results, and then emphasizes his position that clinical and statistical studies confirm these results and, moreover, offer the best and most conclusive means for the consideration of the disease, cancer.

Progress in Surgery

A Résumé of Recent Literature.

Studies in the Physiology and Pathology of the Stomach after Gastro-Enterostomy. A. O. WILENSKY and B. B. CROHOR. New York: *American Journal of Medical Sciences,* June, 1917.

The author studied 37 cases of gastro-enterostomy with pyloric exclusion by means of test meals, kymographic tracings, according to the methods of Cannon and Carlson, and *x*-rays. They divide their cases into three groups: 1. Cases that are apparently cured; there were 11 such. 2. Cases, 14 in number, in which gastric and other abdominal symptoms are present following the operation. 3. Cases, 7 in number, in which symptoms and signs of either gastro-jejunal ulcer or of contraction of the stoma are present. In the last two groups profound changes in the secretion and peristalsis are present, and nearly all show greater or less retention of stomach contents. The authors hold that the prevalent opinion concerning the harmlessness of gastro-enterostomy as regards function of the stomach must be revised. In only a minority of the cases does the normal state of functional activity return. They believe the pyloric exclusion plays some rôle in the causation of the above phenomena, but to what degree cannot be estimated. They also warn against the so-called "concession operation," i. e., the performance of a gastro-enterostomy when no definite lesion is found in the stomach.

Diverticulum of the Duodenum, with a Report of a Case Diagnosed During Life and successfully operated on. S. BASCH, *American Journal of Medical Sciences,* June, 1917.

The patient suffered from gastric symptoms for years, mainly those associated with hyperacidity. With the *x*-ray a persistent shadow was noted on the third postern of the duodenum, which Basch proved to his satisfaction was a duodenal diverticulum. At operation, the diverticulum was found and successfully removed. It measured 3x3x4 cm., showed normal tissues and was regarded by the pathologist as congenital in origin. The patient was decidedly improved by the operation. Basch reviews all the hitherto recorded cases.

Splenectomy in the Anemias and Other Blood States Associated with Enlargement of Spleen and Liver. WILLIAM D. HAGGARD, Nashville. *Journal of the American Medical Association,* July 14, 1917.

After describing the functions of the spleen as far as known and stating the presumed cause of splenic anemia, HAGGARD reviews the conditions in which splenectomy is indicated or has been used, other methods having been ineffective. As regards the important question of the operation in pernicious anemia he says the best results seem to have been obtained in persons below 50 who have had the disease less than a year, in whom the blood picture is fairly good and the spleen is moderately enlarged. Mental, cerebral and spinal cord symptoms are distinct contraindications, and the presence of an aplastic bone marrow is equally forbidding. Hemolytic jaundice is the most promising of all conditions that are benefited by splenectomy and he suggests that certain cases of so-called Hanot's hypertrophic cirrhosis in young life that last a number of years may be really acquired hemolytic jaundice, as Mayo suggests. All chronically enlarged spleens producing symptoms should be exhaustively investigated to show why they should not be removed.

The Relation of the Iliohypogastric Nerve to the Radical Cure of Inguinal Hernia. A. V. MOSCHCOWITZ AND HAROLD NENHOF, New York. *Annals of Surgery,* July, 1917.

These investigators have demonstrated experimentally that that portion of the iliohy pogastric nerve exposed in an operation for inguinal hernia contains no motor fibers but is here purely sensory. Division of the nerve in this field will therefore cause no muscle atraphy and will not affect the result of the operation. Division of the nerve here will produce, however, a localized anethseia; and inclusion of the nerve in a suture may cause neuralgia.

Penetrating Wounds of the Abdomen. T. C. ENGLISH, Saloniki. *Lancet,* Oct. 28, 1916.

In his experiences at the front, English concludes, as so many others in previous wars have before him, that unless perfect facilities are at hand, it is better to treat perforating wounds of the abdomen expectantly. When the patient's condition has improved sufficiently, then he is transported to the base hospital, where operation is performed.

Distal Osteoporosis of the Upper Extremity. D. J. MARTON, Chevy Chase. *New York Medical Journal,* July 7, 1917.

1. In a series of cases presenting a septic compound fracture of the bones of the forearm or of the carpal area, treated with the arm in a pendent position, a diffuse progressive decalcification involving all the bones in the distal extremity of the part and beyond the inflammatory zone, was disclosed, becoming quite apparent about three weeks after the time of injury especially in the cancellous structures, the carpal bones, and ends of the long bones.

2. Changes in soft structures were associated, first appearing as a marked edema and passive congestion of the extremity which continued as long as the wounded part remained acutely inflamed and with its subsidence showed marked retrogressive changes, atrophy, and deterioration of the various structures.

3. The process is distinctly the result of prolonged hypostasis, due to venous constriction in the wounded area and the action of gravity on the circulation of the pendent arm. The changes are produced by impairment of nourishment of the tissues of the extremity and catabolic activity stimulated by the irritation afforded by the accumulation of waste and toxic products. The nature of the disturbing factor indicates the use of the elevated position not only to overcome, but also to guard against, the presence of this condition.

Experience with the Paraffin Dressing for Burns. GEORGE E. BURDICK. *The International Journal of Surgery,* June, 1917.

The material selected for dressing must be of a low melting point and, at the same time, an unfavorable medicine for the growth of bacteria. A preparation known as parresine fulfils these requirements.

The wound is to be thoroughly cleansed with Dakin's solution or with chlorazene. The wound is dried by means of an hot air electric drier; the parresine is then applie *hot*—130° to 150° F.—preferably through an atomizer. A thin strip of gauze is now laid over to wax and a second layer of hot wax applied. This second layer becomes dry and firm and a gauze dressing is placed over the entire wound. The entire dressing is removed daily, the wound irrigated and the same dressing put on.

This treatment may be employed for all burns, new or old.

Neurotization of Paralyzed Muscles by Implantation of Motor Nerves. J. C. A. GERSTER and W. C. CUNNINGHAM, New York, *Medical Record,* August 11, 1917.

The author deprived the gluteal hamstring muscles in rabbits of their blood supply. The anterior tibial nerve was divided close to the knee and implanted into the paralyzed muscle belly. In three animals, stimulation of the implanted nerve one year later provoked contraction of the previously paralyzed muscle. Histological sections showed branchings of the paralyzed nerve as well as nerve endings within the muscle. It seems, therefore, well proven that a recently paralyzed muscle can be innervated by implantation of a motor nerve.

APPLICATION FOR APPOINTMENT
IN THE
MEDICAL RESERVE CORPS, U. S. ARMY

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To the SURGEON GENERAL, U. S. Army,
Washington, D. C.

Sir:

I hereby make application to be examined for appointment in the Medical Reserve Corps, U. S. Army, and inclose testimonials as to my character and habits. *

I certify that to the best of my knowledge and belief I am laboring under no mental or physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required of me if appointed in the Medical Reserve Corps, U. S. Army, and that the answers given to the interrogatories below are true and correct in every respect.

I furthermore state my willingness to proceed to such point for examination as may be designated by the Surgeon General, with the understanding that the journey entailed thereby must be made at my own expense.

INTERROGATORIES.

1. What is your name in full (including your full middle name)?

2. What was the date of your birth?

3. Where were you born? (Give State and city or county; if foreign born, give country.)

4. When and where were you naturalized? (For applicants of alien birth only.)

5. Are you married or single? 6. Have you any minor children; if so, how many?

7. What is your height, in inches? 8. Your weight, in pounds?

9. Give the nature and dates of all serious sicknesses and injuries which you have suffered?

10. If either parent or brother or sister has died, state cause and age in each case:

11. Do you use intoxicating liquors or narcotics; if so, to what extent?

12. Have you found your health or habits to interfere with your success in civil life?

13. What academy, high school, college, or university have you attended? State periods of attendance from year to year, and whether you were graduated, giving date or dates of graduation:

14. Name any other educational advantages you have had, such as private tuition, foreign travel, etc.:

15. Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:

16. With what ancient or modern languages or branches of science are you acquainted?

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*Testimonials as to character and habits from at least two reputable persons must accompany thia application. Political recommendations are not necessary.

17. How many courses of lectures have you attended? Names of colleges and dates:

18. When and where were you graduated in medicine?

19. Have you been before a State examining board? If so, state when, where and with what result:*

20. Are you a member of any State medical society? If so, give its name:

21. Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service:

22. What clinical experience have you had in dispensary or private practice?

23. Have you paid particular attention to any specialty in medicine; if so, what branch?

24. What opportunities for instruction or practice in operative surgery have you had?

25. Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result (if rejected state why):

26. Are you a member of the organized militia? If so, state with what organization and in what capacity:

27. Have you been in the military or naval service of the United States as cadet or otherwise? If so, give inclusive dates of service with each organization, designating it:

28. What occupation, if any, have you followed other than that of student or practitioner?

29. What is your present post-office address?

30. What is your permanent residence?

31. (Signature of applicant) .....

32. The correctness of all the statements made above was subscribed and sworn to by the applicant before me this day of , 191 .

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*This application must be accompanied by a certificate from the proper official that the applicant is duly registered to practice medicine in the State in which he resides.

Form 149
W.D., S.G.O.
(Revised May 3, 1917)

APPLICATION FOR EXAMINATION FOR APPOINTMENT IN THE MEDICAL RESERVE CORPS, U. S. ARMY.

.....Inclosures.